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COAL DISTRIBUTION AND UTILIZATION ACT

HEARING

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES UNITED STATES SENATE

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

ON

S. 318

TO FACILITATE THE NATIONAL DISTRIBUTION AND UTILIZATION OF COAL

APRIL 20, 1989

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COAL DISTRIBUTION AND UTILIZATION ACT

THURSDAY, APRIL 20, 1989

U.S. SENATE,
COMMITTEE ON ENERGY AND NATURAL RESOURCES,
Washington, DC.

The committee met, pursuant to notice, at 10:05 a.m. in room SD-366, Dirksen Senate Office Building, Hon. J. Bennett Johnston, chairman, presiding.

OPENING STATEMENT OF HON. J. BENNETT JOHNSTON, U.S. SENATOR FROM LOUISIANA

The CHAIRMAN. Good morning. Today the Committee will hear testimony on S. 318, the Coal Distribution and Utilization Act, which would facilitate the construction of coal slurry pipelines by providing Federal eminent domain authority.

I have introduced this bill because I believe it would enhance competition, improve our position in the world marketplace and put people to work. This is legislation whose time has come as was dramatically illustrated just last month, when a jury awarded the now-defunct ETSI pipeline $1.04 billion in damages against the Santa Fe Southern Pacific Railroad for blocking its coal slurry pipeline project.

The railroads had refused to grant ETSI pipeline needed rights of way across railroad lands in violation of the antitrust laws. My bill addresses the problem of obtaining rights of way for coal slurry pipelines by providing for Federal eminent domain authority.

A report issued by the National Coal Council states that the total cost of transporting export coal is the most significant factor affecting the international competitiveness of the U.S. coal industry. The Energy Information Administration estimates that by 1995, coal pipeline rates would be anywhere from $12 to $20 per ton less than railroad rates.

Domestic utilities are now buying coal from countries such as Colombia and Australia. In other words, it is more cost-effective for them to buy this coal from half way around the world than from our own coalfields.

These imports hurt both industry and labor. According to EIA estimates, increased coal imports in 1995 will result in a loss of 2,500 jobs and $389 million in business revenue and the picture is equally grim when it comes to exports. The U.S. has historically been the world's leading steam coal exporter. However, EIA projects that by the year 2000 we will fall to fourth place in exports.

The high cost of coal transportation is a problem that could and would be remedied through the construction of coal slurry pipelines. The evidence is incontrovertible that where rail transport competition exists, the result has been lower haulage rates for coal. One need look only at the southern Powder River Basin or the East Lake coal slurry pipeline in Ohio as examples.

This Committee has favorably reported essentially the same coal slurry provisions in three of the last four Congresses and prior to that, when Scoop Jackson was chairman, we passed a bill through the Senate. S. 318 incorporates the language relating to environmental protection and state water rights as previously approved by this Committee.

I anticipate today's testimony to reinforce the fact that coal slurry pipelines will provide enormous benefits to our country in terms of reduced reliance on foreign energy sources, greater ability to compete in the world marketplace and creation of hundreds of thousands of jobs.

[The prepared statements of Senators McClure and McConnell and the text of S. 318 follow:]

OPENING STATEMENT OF SENATOR MCCLURE

HEARING ON S. 318, COAL SLURRY LEGISLATION

I WOULD LIKE TO BEGIN BY THANKING THE DISTINGUISHED CHAIRMAN OF THE COMMITTEE FOR SCHEDULING THE HEARING THIS MORNING. CERTAINLY, THOSE OF US WHO HAVE SERVED ON THIS COMMITTEE IN PAST CONGRESSES HAVE HAD THE OPPORTUNITY BECOME WELL-ACQUAINTED WITH THE ISSUES ASSOCIATED WITH COAL SLURRY LEGISLATION. HOWEVER, IN THE INTEREST OF PROVIDING NEW MEMBERS OF THE COMMITTEE WITH A SIMILAR OPPORTUNITY, I AM VERY PLEASED THAT WE ARE HOLDING THIS SESSION THIS MORNING.

I HAVE LONG BEEN A SUPPORTER OF THE CONCEPT OF PROVIDING LIMITED EMINENT DOMAIN AUTHORITY TO INTERSTATE COAL PIPELINE DISTRIBUTION SYSTEMS WHICH HAVE BEEN DETERMINED TO BE IN THE NATIONAL INTEREST. OVER THE YEARS, LANGUAGE TO ACCOMPLISH THIS GOAL HAS BEEN REFINED TO ADDRESS CONCERNS RAISED BY THE GRANTING OF SUCH AUTHORITY. ONE CONCEPT WHICH IMMEDIATELY COMES TO MIND IS THE PRIMACY OF STATE WATER LAW. CERTAINLY, MUCH TIME AND EFFORT HAS BEEN EXPENDED IN DRAFTING THE WATER LANGUAGE WHICH WAS APPROVED IN THE COMMITTEE-REPORTED BILLS DURING THE 98TH AND 100TH CONGRESSES AND WHICH IS ALSO CONTAINED IN S. 318. I AM SATISFIED THAT THIS LANGUAGE CLEARLY DELEGATES TO THE STATES THE POWER TO REGULATE THE USE OR EXPORT OF WATER IN INTERSTATE COAL SLURRY PIPELINE SYSTEMS NOTWITHSTANDING ANY EFFECT THIS MAY HAVE ON INTERSTATE COMMERCE.

MY SUPPORT FOR COAL SLURRY LEGISLATION IS BASED ON MY BELIEF THAT COMPETITION SERVES THIS NATION WELL. THIS IS ALSO THE REASON WHY I PREFER THE BILL WHICH WAS REPORTED BY THE COMMITTEE DURING THE 100TH CONGRESS TO THE ONE WE ARE CONSIDERING TODAY. LAST YEAR THE COMMITTEE ADOPTED AN AMENDMENT I OFFERED WHICH MODIFIED SECTION 2(C) OF THE MINERAL LEASING ACT TO PERMIT RAILROADS OR THEIR AFFILIATED COMPANIES TO OBTAIN FEDERAL COAL LEASES UNDER STRINGENT CONDITIONS. I CONTINUE TO BELIEVE, AS HAVE THE LAST SIX ADMINISTRATIONS, THE LINOWES COMMISSION, AND THE 1970 PUBLIC LAND LAW REVIEW COMMISSION, THAT SECTION 2(C) IS NO LONGER IN THE PUBLIC INTEREST AND SHOULD BE MODIFIED IN ORDER TO ENHANCE COMPETITION IN THE FEDERAL COAL LEASING PROGRAM.

AGAIN, I THANK THE CHAIRMAN FOR SCHEDULING THIS HEARING ON S. 318 AND LOOK FORWARD TO THE TESTIMONY OF THE WITNESSES.

OPENING STATEMENT
SENATOR MITCH MCCONNELL
ENERGY AND NATURAL RESOURCES COMMITTEE
APRIL 20, 1989

MR. CHAIRMAN, I'M PLEASED THAT THE ENERGY AND NATURAL RESOURCES COMMITTEE IS HOLDING THESE HEARINGS TO LISTEN TO ARGUMENTS FOR AND AGAINST COAL SLURRY PIPELINE LEGISLATION.

I UNDERSTAND MY COLLEAGUES WHO ARE NOT NEW TO THE ENERGY COMMITTEE ARE ALSO NOT NEW TO THE ISSUE OF COAL SLURRY. TO THESE FINE SENATORS I WISH TO EXTEND MY THANKS FOR BEARING WITH THOSE OF US WHO ARE NOT SO FAMILIAR WITH THE ISSUE AND WHO ARE TRYING TO BRING OURSELVES UP TO SPEED.

MR. CHAIRMAN, I MUST SAY THAT I AM CURRENTLY UNDECIDED ON COAL SLURRY LEGISLATION. AS A SENATOR FROM THE TOP COAL PRODUCING STATE IN THE UNION, I HAVE BEEN VERY INTERESTED IN LEARNING MORE ABOUT THIS ISSUE.

HOWEVER, AS I DELVE FURTHER INTO THE CONCEPT OF COAL SLURRY, I REALIZE JUST HOW CONTENTIOUS THE ISSUE IS BOTH ON A NATIONAL LEVEL AND WITHIN MY STATE.

MANY COAL PRODUCERS IN MY STATE TELL ME COAL SLURRY IS A GOOD THING BECAUSE IT WOULD LOWER THE TRANSPORTATION COSTS INVOLVED IN

GETTING COAL TO MARKET. THIS, I AM TOLD, WOULD ALLOW KENTUCKY COAL OPERATORS TO BETTER COMPETE IN OVERSEAS MARKETS. IT WOULD ALSO ALLOW THEM TO BETTER COMPETE FOR DOMESTIC MARKET SHARE.

I'M ALSO TOLD THAT LOWER TRANSPORT COSTS WOULD ALLOW U.S. COAL PRODUCERS TO STEM THE GROWING WAVE OF FOREIGN COAL IMPORTS. IN FACT, I'M TOLD, OTHER COUNTRIES ALREADY HAVE COAL SLURRY PIPELINES, WHICH GIVE THEM A FURTHER COST ADVANTAGE.

ALSO, LOWERING THE COST OF COAL WOULD LOWER THE COST OF ELECTRICITY, WHICH WOULD BENEFIT INDUSTRIAL USERS OF ELECTRICITY. THIS, IN TURN, COULD MAKE OUR MANUFACTURED GOODS MORE COMPETITIVE OVERSEAS AND LOWER THE TRADE DEFICIT.

PROPONENTS OF COAL SLURRY ALSO POINT OUT THE LARGE NUMBER OF JOBS CREATED THROUGH CONSTRUCTION OF THE PIPELINE.

OPPONENTS OF COAL SLURRY TELL ME IT WOULD COSTS JOBS IN THE RAIL INDUSTRY. THEY ALSO SAY THERE MAY NOT BE SUFFICIENT WATER IN SOME STATES TO PROVIDE FOR PUMPING COAL THROUGH THE PIPELINE, TAKING CARE OF AGRICULTURAL NEEDS, AND PROVIDING FOR HUMAN CONSUMPTION. I MUST SAY THAT THE DROUGHT MY STATE EXPERIENCED LAST SUMMER MAKES THIS POINT ONE WORTHY OF CONTEMPLATION.

I'M ALSO TOLD BUILDING THE PIPELINE COULD CAUSE HARM TO THE ENVIRONMENT AND TO AGRICULTURAL LAND. SOME FARM GROUPS WORRY

THAT IF THE RAILROADS LOOSE THE COAL HAULAGE BUSINESS, THEY MIGHT BE FORCED TO RAISE RATES FOR GRAIN HAULAGE.

THESES ARE JUST SOME OF THE INITIAL FACTORS I'VE HEARD ON BOTH SIDES OF THE ARGUMENT.

I LOOK FORWARD TO HEARING FROM OUR WITNESSES TODAY. I HOPE THEY CAN ELABORATE ON SOME OF THE POINTS I'VE JUST MENTIONED AS WELL AS PROVIDE FURTHER INSIGHT INTO WHY AND WHY NOT PROPOSED COAL SLURRY LEGISLATION SHOULD BECOME LAW.

THANK YOU AGAIN, MR. CHAIRMAN.

II

101st CONGRESS
1st Session

S. 318

To facilitate the national distribution and utilization of coal.

IN THE SENATE OF THE UNITED STATES

JANUARY 31 (legislative day, JANUARY 3), 1989

Mr. JOHNSTON (for himself, Mr. BRADLEY, Mr. BOREN, Mr. DECONCINI, Mr. GARN, Mr. INOUYE, Mr. MCCAIN, Mr. MATSUNAGA, Mr. MURKOWSKI, Mr. NICKLES, Mr. STEVENS, and Mr. WILSON) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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A BILL

To facilitate the national distribution and utilization of coal.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be referred to as the "Coal Distribution and Utilization Act".

FINDINGS AND PURPOSE

SEC. 2. (a) The Congress hereby finds and declares that—

(1) the continuing dependence of the United States on foreign sources for petroleum and petroleum products entails grave national security risks, results in

major balance-of-payment deficits, and increases inflation and unemployment in the domestic economy;

(2) the United States possesses extensive coal reserves that must be produced, distributed, and utilized to reduce the Nation's dependence on imported petroleum;

(3) domestic coal reserves cannot be developed and used for fuel unless adequate transportation systems and facilities exist for the efficient and economic distribution of large quantities of coal across great distances to markets in interstate and foreign commerce at competitive prices;

(4) the Nation's coal distribution system must include interstate coal pipeline distribution systems that will assist the Nation in the development and efficient utilization of coal resources;

(5) the construction of interstate coal pipeline distribution systems to distribute domestic coal will be facilitated by granting the power of eminent domain to certain interstate coal pipeline distribution systems;

(6) the construction of interstate coal pipeline distribution systems is a public use that justifies granting the Federal power of eminent domain to those systems for which a determination of national interest has been made pursuant to this Act;

(7) the water resources of the States are necessary for the development of other resources within those States, and State water laws or terms and conditions of permits and authorizations for the appropriation, use, and diversion of water that restrict, limit, or condition the export of water in interstate coal pipeline distribution systems are reasonable and permissible means for the protection of the resources and the public interests of States;

(8) State water law and interstate compacts are carefully balanced and structured systems for the allocation of water;

(9) the national interest is best served by developing interstate coal pipeline distribution systems pursuant to those State water laws, interstate compacts, and laws governing the interstate allocation of water, including, notwithstanding any adverse impact such law may have on interstate commerce, laws relating to or prohibiting the export or use of water within or outside the State granting or denying such export or use; and

(10) the need for a national coal distribution system is subservient to the national interest in the primacy of State water law, interstate compacts, and laws governing the interstate allocation of water.

(b) The purpose of this Act is to facilitate the development of interstate coal pipeline distribution systems by granting the Federal power of eminent domain to those interstate coal pipeline distribution systems that are determined to be in the national interest: *Provided,* That such development is subject to State water law, interstate compacts, and laws governing the interstate allocation of water.

DEFINITIONS

SEC. 3. For the purposes of this Act the term—

(1) "coal" means any of the recognized classifications of coal, including anthracite, bituminous, semibituminous, subbituminous, and lignite;

(2) "interstate coal pipeline distribution system" means any pipeline system the economic purpose of which is the distribution of coal in a liquid or solid state—

(A) from one or more points outside a State to one or more points within a State or between two or more points within a State through another State, or

(B) from one or more points within Alaska to one or more points in a foreign country. Such a pipeline system shall be deemed to be in interstate or foreign commerce if coal that enters the pipeline system is delivered for commercial use in a

State other than Alaska, in a territory of the United States, or in a foreign country.

An interstate coal pipeline distribution system includes line pipe, valves, pumping stations, water supply pipelines, and such dewatering facilities as are necessary. Such systems shall not include rail, port, highway, or other ancillary coal-gathering or coal-storage facilities.

(3) "private lands" means any interest in any land other than interests—

(A) owned by the United States or agency thereof or owned by any State or any political subdivision thereof;

(B) held in trust by the United States for an Indian or Indian tribe or owned by an Indian or Indian tribe subject to a restraint against alienation imposed by the United States; or

(C) owned by a regional or village corporation established under the Alaska Native Claims Settlement Act, as amended, if such land was transferred to such corporation pursuant to said Act;

(4) "right-of-way" means such interest in private lands, excluding any interest in water, as may be necessary for construction, operation, and maintenance of an interstate coal pipeline distribution system;

(5) "Secretary" means the Secretary of Energy or his successor;

(6) "State" means a State of the United States and the District of Columbia; and

(7)(A) "State water law" includes but is not limited to all substantive and procedural State constitutional provisions, statutory law, judicial decisions, administrative regulations, and administrative decisions authorized by the State which apply to water; and

(B) in the case of any State water law which might be argued to be invalid as an improper burden, interference, or regulation of interstate commerce, such State water law shall not be deemed to be invalid for that reason insofar as such law applies to the export or use of water within or outside the State granting or denying the export or use of water for any interstate coal pipeline distribution system. State water law includes both existing law and that new law properly enacted or created in the future.

EMINENT DOMAIN AUTHORITY

SEC. 4. (a) AUTHORITY TO MAKE NATIONAL INTEREST DETERMINATION.—(1) Upon application of any person proposing to construct an interstate coal pipeline distribution system, who has filed and secured approval of a water permit or acquired other appropriate authorization to control, reserve, appropriate, purchase, transfer, use, export, divert, dedicate or claim water under State water law as provided in section 5, or who proposes to construct any interstate pipeline distribution system using a transport medium other than water, the Secretary shall determine whether the construction of such system is in the national interest.

(2) The determination of the Secretary under paragraph (1) shall be based on the record as a whole, taking into consideration each of the criteria set forth in subsection (b).

(b) Findings.—In making a determination under subsection (a) the Secretary shall make findings concerning the extent to which the system—

(1) would help meet national needs for coal distribution and utilization considering, among other matters, alternative routes, or means of distributing coal;

(2) would enhance competition and provide new market outlets and opportunities for coal producers, including small and independent producers;

(3) would contribute to the national security by encouraging the displacement of imported petroleum, petroleum products, and coal with domestic coal;

(4) would result in economic benefits including—

(A) reduced coal transportation costs;

(B) reduced wholesale and retail electric rates; and

(C) enhanced reliability of supplies of both coal and electric energy; and

(5) would affect the environment, compared to the environmental impacts of alternatives, including—

(A) railroad transportation;

(B) alternative pipeline routes; and

(C) coal utilization facilities, including electric generating plants at coal mine sites and coal gasification plants.

(c) Small and Independent Coal Producer Access.—(1) For purposes of protecting small and independent coal producers, the Secretary shall require, as a condition of his determination under subsection (a), that the applicant, prior to application, shall offer to make available to such producers the lesser of—

(A) 10 per centum of the total pipeline capacity of the proposed interstate coal pipeline distribution system; or

(B) that portion of the total capacity necessary to satisfy the total interstate coal pipeline distribution system transportation demand of all such small and independent producers located in the geographic region (as determined by the Secretary) served by such pipeline;

under the same terms and conditions as other contracting entities.

(2) For purposes of this subsection, the term "small and independent coal producer" means a coal producer, or a broker or cooperative that represents individual coal producers—

(A) who produced two hundred thousand tons or less of coal during the calendar year preceding the calendar year in which the application is filed, and

(B) are not affiliated with any other company. For purposes of this subparagraph, a coal producer shall be treated as affiliated with another company if such company controls, is controlled by, or is under common control with such coal producer. The term "control" shall have the same meaning provided by section 10102 of title 49, United States Code.

(d) PROCEDURES.—(1) Any decision under subsection (a) shall be made after notice and opportunity for presentation of written data, views, or arguments in accordance with section 553 of title 5 of the United States Code. If the Secretary, in his discretion, decides to hold hearings, the Secretary shall expedite such hearings and proceedings, and shall schedule all hearings, proposed findings and conclusions, exceptions and any recommended decisions so that the Secretary's final decision under this section shall be issued and completed within eighteen months from the date of receipt of a complete application, except that the Secretary may, for good cause, extend such eighteen-month period for additional periods of not more than ninety days.

(2) Within thirty days after receipt of an application for a determination under this section, the Secretary shall determine whether the application contains all of the information required for its consideration whereupon he shall, within seven days, publish notice of receipt of the application in the Federal Register. The Secretary shall further notify the Governor of each State in which the interstate coal pipeline distribution system will be located. Each notification shall identify the lands over which the interstate coal pipeline distribution system is to be constructed or operated and the water source to be used. If the Secretary determines that all of the required information is not in the application, he shall immediately notify the applicant of all the deficiencies in the application and provide a reasonable period of time for such applicant to provide additional information.

(3) Each applicant for such a determination shall reimburse the Secretary for administrative and other costs incurred by the Secretary in processing the application in such manner as the Secretary shall, by rule, prescribe.

(e) ANTITRUST REVIEW.—(1) Not later than ten days after any application for a determination under this section is received by the Secretary, the Secretary shall notify the Attorney General of the filing of such application and shall provide the Attorney General with a copy of such application and such other information as the Attorney General may request. The Attorney General shall conduct an antitrust review to determine the likely effects upon competition of approval of such application, and not later than one hundred and twenty days after the date of receipt of such notification shall advise the Secretary of the results of such review, including, but not limited to, findings, and recommendations concerning such terms and conditions as the Attorney General deems necessary to protect and promote competition. No application may be determined to be in the national interest under this section if the Attorney General advises the Secretary in writing that, on the basis of such review, approval of such application is not consistent with the antitrust laws.

(2) For the purpose of paragraph (1), the term—

(A) "antitrust laws" has the meaning such term has under section 1 of the Clayton Act (15 U.S.C. 12); and

(B) "antitrust review" has the meaning the term "antitrust investigation" has under section 2 of the Antitrust Civil Process Act (15 U.S.C. 1311).

(f) EMINENT DOMAIN AUTHORITY.—(1) Any person proposing to build an interstate coal pipeline distribution system, the construction of which has been determined by the Secretary to be in the national interest, may, after making good faith efforts to acquire, such rights-of-way by negotiations between such person and private landowners, acquire rights-of-way over, under, upon, or through private lands by exercise of the power of eminent domain in the United States district court for the district in which such lands are located or in the appropriate court of the State in which such lands are located. In any action or proceeding to acquire rights-of-way under this section, such action or proceeding shall conform to the laws, practices, and procedures relating to the general eminent domain law of the State where the property is situated, except that in the case of any such State law, practice, or procedure, the effect of which would prohibit any acquisition under this section, or which discriminates against interstate coal pipeline distribution systems, such State law, practice, or procedure shall not be applicable.

(2) Nothing in this section shall be construed to permit any person to acquire any water rights through the exercise of the power of eminent domain granted under this Act.

(3) No interstate coal pipeline distribution system constructed pursuant to the authorities of this section shall be considered to be a Federal project for purposes of the application for or assignment of water rights.

(4) Unless there is no feasible and prudent alternative to the acquisition of a right-of-way and reasonable planning is made to minimize harm resulting from the acquisition, no such right-of-way may be acquired through exercise of the power of eminent domain under this Act if such right-of-way is over, under, upon, or through—

(A) lands of National, State, or local historic significance as determined by the Federal, State, or local officials having jurisdiction thereof; or

(B) lands held by a qualified organization as defined in section 170(h)(3) of the Internal Revenue Service Code of 1954 primarily for wildlife refuge, sanctuary, recreational or natural resource conservation purposes.

(g) ALTERNATIVE ROUTES.—(1) Nothing in this section shall be deemed to prohibit the applicant from amending his application to request a right-of-way over any alternative route.

(2) The Secretary may require the relocation of any right-of-way sought pursuant to this Act upon a showing that—

(A) such relocation is necessary to enable the United States to realize fully the value of its mineral interest;

(B) such alternative route is available; and

(C) such relocation would not result in unreasonable expense.

(h) PAYMENT FOR FEDERAL COAL.—(1) Each application for a determination of national interest filed pursuant to subsection (a) shall list each instance where the proposed right-of-way crosses lands wherein the United States maintains a mineral interest regarding coal (hereinafter referred to as "Federal coal"). Not later than ten days after any such application is received by the Secretary, the Secretary shall notify the Secretary of the Interior of the filing of such application and shall provide the Secretary of the Interior with a copy of such application and such other information as the Secretary of the Interior may request.

(2)(A) The Secretary of the Interior shall evaluate the effects of approval of such application upon the ability of the United States to realize the value of such mineral interest as a result of approval of the application.

(B) The Secretary of the Interior shall—

(i) establish terms and conditions necessary to minimize the impact of such right-of-way on the establishment of logical mining units; and

(ii) determine the extent to which alternative routes are available which would minimize the impact of granting the right-of-way on the ability of the Federal Government to realize the value of Federal coal.

(C) The Secretary of the Interior shall establish the fair market value of the Federal coal precluded from being recovered as a result of the proposed right-of-way. The Secretary of the Interior shall also establish the amount of reduction of the fair market value of Federal coal which will be more costly to recover as a result of the proposed right-of-way.

(3) The Secretary shall thereafter establish such terms and conditions requiring the applicant to pay the United States the amount established by the Secretary of the Interior pursuant to subparagraph (C).

(i) Rules and Regulations.—The Secretary shall promulgate such rules and regulations as are necessary for the expeditious exercise of the authority granted in this section.

(j) Additional Requirement.—In implementing this section, the Secretary shall be subject to the provisions of section 210 of Public Law 90–537, as amended (43 U.S.C. 1511).

PRIMACY OF STATE WATER LAW

Sec. 5. (a) No person, legal entity, or governmental entity (including the United States, a State or subdivision thereof), their agents, permittees, licensees, or transferees, or any interstate coal pipeline distribution system, shall control, reserve, appropriate, purchase, transfer, use, divert, dedicate, dispose of, distribute, acquire, exercise, export or claim water, or any right or interest therein, for export or use within or outside the State granting or denying the export or use of water in an interstate coal pipeline distribution system, unless such control, reservation, appropriation, purchase, transfer, use, diversion, dedication, disposal, distribution, acquisition, exercise, export or claim takes place pursuant to and in compliance with the State water law of that State. Such State water law shall be enforced even though enforcement would result in the failure to build an interstate coal pipeline distribution system, and even though it would result in uneven and disparate effects on interstate commerce.

(b) In full recognition of its powers under Article I, section 8, of the United States Constitution, Congress expressly delegates to the States the power to regulate the use or export of water in interstate coal pipeline distribution systems, through State water laws, notwithstanding any adverse impact such delegation may have on interstate commerce or on any interstate coal pipeline distribution system. This delegation expressly includes but is not limited to provisions of State water law which provide for the establishment or exercise of terms or conditions (including terms or conditions terminating use or relating to or prohibiting the export of water) on permits or authorizations for, interests in, or rights to control, reservation, appropriation, purchase, transfer, use, diversion, dedication, disposal, distribution, acquisition, exercise, export or claim of water for the export or use in any interstate coal pipeline distribution system.

(c) Nothing in this Act shall—

(1) impair the validity of or preempt any provision of State water law, or of any interstate compact governing water;

(2) alter the rights of any State to its apportioned share of the waters of any body of surface or groundwater, whether determined by past or future interstate compacts, or by past or future legislative or final judicial allocations;

(3) preempt or modify any State or Federal law or interstate compact dealing with water quality or disposal;

(4) confer upon any non-Federal entity the ability to exercise any Federal right to the waters of any stream or to any ground water resources; or

(5) affect water rights of any Indian or Indian tribe which were established by the setting aside of a reservation by treaty, executive order, agreement or Act of the Congress.

(d) No waters to which a Federal right can be asserted shall be used or exported in any interstate coal pipeline distribution system, unless authorized pursuant to and subject to

State water law in the same manner as provided for in subsection (a).

APPLICATION OF STATE AND LOCAL LAW

SEC. 6. (a) Nothing in this Act shall impair the validity of or in any way preempt the applicability of a State water law to an interstate coal pipeline distribution system even if such applicability discriminates against or would have the effect of prohibiting the location, construction, operation, or maintenance of such pipeline.

(b) Nothing in this Act shall impair the validity of or preempt any State or local law, regulation, or rule of law pertaining to the location, construction, operation, or maintenance of an interstate coal pipeline distribution system except where such State or local law, regulation, or rule of law discriminates against interstate coal pipeline distribution systems.

UNDERGROUND CONSTRUCTION

SEC. 7. All coal pipelines granted Federal powers of eminent domain, pursuant to the provisions of this Act, for rights-of-way and extensions thereof shall, to the maximum extent practicable, consistent with environmental protection, safety, and good engineering and technological practices, be located underground, and the person holding such right of Federal eminent domain shall replace sufficient topsoil on disturbed areas so that a vegetative cover, comprised of native species where practicable, can be reestablished at least equal in extent of cover as that which sustained the natural vegetation in the area.

CONTINUING JURISDICTION OF STATE PUBLIC UTILITY COMMISSIONS

SEC. 8. Nothing in this Act shall be construed to require any forms of automatic passthrough of, or preempt the ratemaking authority of any State utility regulatory agency or the Federal Energy Regulatory Commission with respect to costs related to construction, operation, and maintenance of any interstate coal pipeline distribution system, whether or not such costs have been provided for by contract between a utility and the interstate coal pipeline distribution system operator.

APPLICABILITY OF ENVIRONMENTAL CONTROL LAWS

SEC. 9. Any interstate coal pipeline distribution system authorized under this Act shall be subject to the requirements of the Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et seq.), and any other applicable State and Federal environmental control laws.

WATER DISCHARGE REQUIREMENTS

SEC. 10. With respect to any proposed pipeline distribution system using water as the transport medium, prior to the issuance of any findings pursuant to section 4 of this Act, the Secretary shall notify the Administrator of the Environmental Protection Agency of his consideration of the application for a determination under subsection (4)(a). The Secretary and the person applying for such determination shall provide such information as the Administrator shall require to conduct a review of the ability of the proposed interstate coal pipeline distribution system to comply with Federal water discharge requirements. The Administrator shall have one hundred and twenty days from the date of receipt of such notification to conduct such review and to advise the Secretary with respect thereto. The Secretary shall not issue any findings pursuant to section 4 unless he has received a report from the Administrator of the Environmental Protection Agency advising that, in the judgment of the Administrator, it can reasonably be expected that the water discharge can meet the requirements of the Federal Water Pollution Control Act.

ACCESS TO COAL PIPELINE TRANSPORTATION CONTRACTS

SEC. 11. (a)(1) By filing a contract between a prospective shipper and a pipeline carrier with the Federal Energy Regulatory Commission (hereinafter referred to as the Commission), within ten business days of signing said contract, any person operating or proposing to operate an interstate coal pipeline distribution system may enter into contracts with one or more shippers of coal to provide transportation under specified rates, terms, and conditions but may not unreasonably discriminate by refusing to enter into similar contracts under similar rates, terms, and conditions with other shippers who are seeking service from the same origin areas to the same terminus areas and are ready, fit, willing, and able to enter into such contracts in a contemporaneous period. The term "ready, fit, willing, and able" as used in this section includes, but is not limited to financial fitness. Such contract filing shall include all rates, terms, and conditions of said contract.

(2) Service under a contract executed pursuant to paragraph (1) of this subsection is deemed to be a separate and distinct class of service. Persons operating interstate coal pipeline distribution systems shall be obligated to perform only those duties specified by the terms and conditions of any such contract in connection with the services provided under such contract. Service under such contracts shall not be interrupted for the purpose of prorating or allocating to other shippers the pipeline capacity committed to service under such contracts.

(b)(1) Any person operating or proposing to operate an interstate coal pipeline distribution system who files contracts under this section for the transportation of a volume of coal which is less than the volume of coal that would totally obligate the capacity of the pipeline shall, in the sixty-day period beginning on the date of the filing of such contract, enter into contracts with shippers who are ready, fit, willing, and able to enter into such contracts under rates, terms, and conditions similar to the rates, terms, and conditions contained in the contract that has been so filed. That person shall enter into such similar contracts in the chronological order in which binding written offers to enter into such similar contracts are submitted to such person. The obligation imposed by this subsection shall remain in effect—

(A) until the capacity of the pipeline is totally committed for providing transportation under contracts approved under this section, or

(B) until the end of the sixty-day period, whichever occurs first.

(2) Not later than the thirtieth day following the end of such sixty-day period, a shipper of coal may file a complaint with the Commission on the grounds that the person operating the interstate coal pipeline distribution system is violating this subsection.

(3) If, following a notice and an opportunity for a hearing, but not later than the thirtieth day following the filing of a complaint in accordance with paragraph (2) of this subsection, the Commission finds that the person is violating this subsection and has, with respect to the complaining shipper, an obligation under this subsection to enter into a contract, the Commission shall order that person to provide the service specified in the offer under such rates, terms, and conditions contained in the contract that is filed with the Commission under paragraph (1) of this subsection. In addition, if the

Commission finds that a person is violating this subsection by entering into contracts with shippers of coal pursuant to paragraph (1) of this subsection in an order other than the order in which binding offers are submitted, the Commission shall establish the proper order of such for approval under subsection (c) of this section.

(4) The Commission may not approve, under this section, any contract for the transportation of coal by pipeline—

(A) if approval of such contract will result in the total tonnage of coal obligated to be transported by the pipeline in any period under contracts approved under this section exceeding the maximum capacity of the pipeline in such period; or

(B) if the provision of coal transportation services under such contract would result in a destructive competitive practice.

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The CHAIRMAN. I thank our distinguished witnesses for being here today and I look forward to their testimony. We begin this morning—I might add that we have a large number of witnesses, so as usual we would like to receive all written statements, put them in the record verbatim and then urge—strongly urge witnesses not to read statements, but to hit the highlights. This is not the first time, of course, that this Committee has considered this legislation. However, we want to give time to Senator Burns and others who are new to this legislation to ask the questions that they wish.

We begin with the first panel, Marvin J. Boede, General President of the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry, also testifying on behalf of the Building and Construction Trades Department of the AFL–CIO, and Jack Otero, International Vice President for Transportation, Communication and International Union. He is accompanied by K.O. Richardson, Chairman of the Railway Labor Executives' Association Task Force on Coal Slurry.

Gentlemen, welcome to the Committee and please proceed as you wish. Mr. Boede, I guess you will begin.

STATEMENT OF MARVIN J. BOEDE, GENERAL PRESIDENT, UNITED ASSOCIATION OF JOURNEYMEN AND APPRENTICES OF THE PLUMBING AND PIPEFITTING INDUSTRY, AND ON BEHALF OF THE BUILDING AND CONSTRUCTION TRADES DEPARTMENT, AFL–CIO

Mr. BOEDE. Thank you, sir.

Mr. Chairman, members of the Committee, I am Marvin Boede, the General President of the 335,000 member United Association of Plumbers and Pipefitters and I am here today to testify in strong support of S. 318, the Coal Distribution & Utilization Act. I should point out also that I am the Vice President of the Building and Construction Trades Department of the AFL–CIO, made up of 15 national-international unions in the construction industry.

The CHAIRMAN. Mr. Boede, may I interrupt you at that point and I welcome all the members of organized labor who I hear in the audience. We appreciate their presence here.

Mr. BOEDE. It is gratifying, is it not, senator?

The CHAIRMAN. Yes, it is.

Mr. BOEDE. I am fully authorized to speak for the Department, which has repeatedly and unanimously passed resolutions supporting eminent domain legislation for coal pipelines. All together, the unions making up the Department total more than 4 million members.

Frankly, our members need the work that this legislation would provide, but there is another more compelling reason to enact this legislation, a reason that impacts on every citizen and every worker in the United States, no matter what his occupation may be.

We must have an increased measure of energy independence, or our national security will continue to be jeopardized and undermined by foreign nations, often our bitter foes, who control so much of the flow of oil in international commerce.

The United States is heading full-speed into another energy crisis and its accompanying nightmares. Right now, we are importing a higher percentage of oil than at the height of the 1973 oil embargo, when imported petroleum constituted 35 percent of American oil consumption. Once more, the Energy Information Administration of the Department of Energy warned in its most recent annual report that imports could rise to 55 percent by 1994 and to more than 60 percent by the turn of the century. So where do we turn?

To many of us, the answer is obvious. We turn to coal. We have coal resources unmatched by any nation on earth. One third of the known coal resources are located right here in the United States of America and they will last for hundreds of years.

Anything we can do to promote the increased use of coal to replace oil in the power plants of American industry, especially in the production of electricity, should be done—and done immediately. But the cost of transporting coal remains a major stumbling block. S. 318 will increase coal transportation options by removing a barrier to entry for many new companies who simply want a chance to provide healthy competition in the transportation of coal.

Pipelines have clearly demonstrated to be one of the safest, most reliable and most economical transportation methods ever developed. There is nothing experimental about coal slurry piping.

The bill before your Committee provides an alternative system for delivering coal that is competitive, efficient and environmentally sound. It calls for no government subsidy, no expenditures of Federal revenue, strict compliance with all environmental protection statutes and expressly delegates to the states the power to regulate the use or export of water in the interstate coal slurry pipeline system. It would provide jobs in construction and manufacturing, particularly steel.

In order to give the Committee some insight into the jobs impact, let me cite some of the numbers developed by the Bechtel Corporation shortly before the 1983 vote on a similar bill. Using standard Bureau of Labor statistics methods, it was estimated that construction of seven pipelines then under consideration would have created 50,000 jobs for construction workers, another 100,000 would have been created in the construction support sector and another 350,000 in the production of valves, pumps, steel and heavy equipment, for a grand total of 500,000 jobs for the seven pipelines being considered.

Remember that the creation of jobs goes far beyond the initial construction of pipelines. For many utilities, lowering the delivered price of coal would provide incentive for expanding existing power plants and even building new coal-fired power plants.

Furthermore, coal pipelines are particularly well-suited to deliver coal to ships for the export market, a market that is sitting there for American coal producers to develop. Jobs would be created to build new marine terminals and shipyard workers would benefit from an increased need for barges, tankers and other ocean-going vessels.

It is estimated, I might add, that Japan alone will account for 50 percent of the world's steam coal demand by 1990. As I said recently to many of my members, would it not be a nice change to sell more American coal to Japan than they sell cars to us?

The railroad scenario of disastrous consequences in that industry simply does not square with reality. Even the most optimistic forecast suggests that pipelines would be competitive enough to carry only a small percentage of all the coal transported. In any case, since when does fear of competition carry the day in America? Since when do we say, monopoly is good and competition is bad? In the hauling of coal the marketplace is not free and that is one of the reasons this nation needs this bill.

Without the kind of controlled eminent domain procedure this bill provides, the railroads will continue to force pipeline developers into endless and expensive litigation that has made pipeline construction nonfeasible right up to the present moment. The American people and American industry must no longer be denied the right to decide for themselves whether they can or cannot make use of the coal slurry pipeline technology.

During the last Congress, when I testified before your Committee, I said it was outrageous that the railroad industry, using property rights ceded it by the government, had gotten away with the blatant obstructionist tactics they were using. Mr. Chairman, in that respect things have changed. The railroads are not getting away with it. They are finally paying for these underhanded tactics, and they are paying dearly.

Just a few weeks ago, as this Committee knows, a Federal Court in Texas ruled that the Santa Fe Southern Pacific had conspired to block construction of a 1,400 mile ETSI pipeline carrying coal from Wyoming to Texas and Arkansas. Santa Fe Railroad was ordered by a jury to pay $345 million to Energy Transportation Systems, Inc.—which is ETSI—for its part in this conspiracy. Under antitrust laws, Santa Fe would pay triple damages, or $1.035 billion.

Earlier, the other railroads named as conspirators in the ETSI suit chose prudence over valor and settled out of court. This included Burlington Northern, for $175 million, Kansas City Southern for $69 million, Chicago & North Western for $15 million and Union Pacific for an undisclosed amount.

Railroads were also sued by the Houston Lighting & Power Company. They settled that one for some $112 million. It is my understanding the utility will share that award with its customers by giving them a reduced rate. But any savings to those customers will be a drop in the bucket compared to what they would have saved if the railroads had not conspired to kill the ETSI pipeline.

Furthermore, the State of South Dakota filed its own lawsuit against just one of the conspiring railroads, Kansas City Southern. South Dakota, which would have sold the water for use in the ETSI pipeline, accused Kansas City Southern of a conspiracy to block pipeline construction resulting in restraint of trade that hurt interstate commerce in general and South Dakota in particular. The jury agreed and awarded South Dakota $200 million, an amount that has already been tripled under the Federal antitrust laws.

All of this, I suppose provides a little balm for some of those injured by the railroads' unrelenting and unfair opposition, but we see it as a stunning example of the truth of the often-repeated adage, justice delayed is justice denied. Even though they are paying for it now in the sense that it is costing them money, I would suppose the railroads still feel that it was all worthwhile. They did crush the ETSI joint venture after all and have certainly discouraged others who would dare propose another coal slurry pipeline.

Congress can and certainly should put an end to these abusive practices by passing S. 318 without further delay. It will not eliminate railroad opposition, but it will go a long way toward eliminating their opportunities for further manipulation and conspiracy. All we ask is a level playing field. Pipelines deserve a chance to compete fairly and above-board.

Thank you, Mr. Chairman and that concludes my testimony.

[The prepared statement of Mr. Boede follows:]

TESTIMONY OF

GENERAL PRESIDENT MARVIN J. BOEDE

UNITED ASSOCIATION OF JOURNEYMEN AND APPRENTICES

OF THE PLUMBING AND PIPE FITTING INDUSTRY

OF THE UNITED STATES AND CANADA, AFL-CIO

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

THURSDAY, APRIL 20, 1989

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE, I AM MARVIN J. BOEDE, GENERAL PRESIDENT OF THE 335,000-MEMBER UNITED ASSOCIATION OF PLUMBERS AND PIPEFITTERS, AND I AM HERE TODAY TO TESTIFY IN STRONG SUPPORT OF S.318, THE COAL DISTRIBUTION AND UTILIZATION ACT.

I SHOULD POINT OUT ALSO THAT I AM VICE PRESIDENT OF THE BUILDING AND CONSTRUCTION TRADES DEPARTMENT OF THE AFL-CIO, MADE UP OF 15 NATIONAL AND INTERNATIONAL UNIONS IN THE CONSTRUCTION INDUSTRY.

I AM FULLY AUTHORIZED TO SPEAK FOR THE DEPARTMENT WHICH HAS REPEATEDLY AND UNANIMOUSLY PASSED RESOLUTIONS SUPPORTING EMINENT DOMAIN LEGISLATION FOR COAL PIPELINES. ALTOGETHER THE UNIONS MAKING UP THE DEPARTMENT TOTAL MORE THAN 4 MILLION MEMBERS.

MR. CHAIRMAN, REPRESENTATIVES OF MY UNION, AND OF OTHER CONSTRUCTION UNIONS, AS WELL AS PRESIDENT ROBERT GEORGINE OF THE BUILDING AND CONSTRUCTION TRADES DEPARTMENT, HAVE TESTIFIED MANY TIMES IN SUPPORT OF COAL PIPELINES.

AND, I MUST SAY THAT THE REASONS FOR OUR TESTIMONY ARE EVEN MORE COMPELLING TODAY THAN THEY WERE IN THE PAST.

WE HAVE THE TRAINED MANPOWER THAT CAN BUILD THESE PIPELINES AND WE HAVE A DEEPLY-FELT NEED TO PROVIDE MORE JOB OPPORTUNITIES FOR CONSTRUCTION WORKERS WHO ARE ALWAYS HIT THE HARDEST BY RISING UNEMPLOYMENT IN THE AMERICAN ECONOMY.

BUT THERE IS ANOTHER COMPELLING REASON TO ENACT THIS BILL, A REASON THAT IMPACTS ON EVERY CITIZEN AND EVERY WORKER NO MATTER WHAT HIS OCCUPATION HAPPENS TO BE.

WE MUST HAVE AN INCREASED MEASURE OF ENERGY INDEPENDENCE OR OUR NATIONAL SECURITY WILL CONTINUE TO BE JEOPARDIZED AND UNDERMINED BY FOREIGN NATIONS, OFTEN OUR BITTER FOES, WHO CONTROL SO MUCH OF THE FLOW OF OIL IN INTERNATIONAL COMMERCE.

THE ASTONISHING AND DANGEROUS EVENTS THAT CONTINUE TO OCCUR IN THE MIDDLE EAST OUGHT TO MAKE IT CLEAR TO ALL OF US THAT, WHERE ENERGY SECURITY IS CONCERNED, WE ARE MOST DECIDEDLY LIVING IN A FOOL'S PARADISE.

IT IS UNFORTUNATE FOR ALL OF US THAT IT TAKES A CRISIS AND THE DRAMATIC EVIDENCE OF GAS RATIONING AND LONG LINES OF CARS AT THE PUMPS TO BRING HOME TO THE AMERICAN PEOPLE THAT THERE IS A PROBLEM.

IT WILL NOT SIMPLY DISAPPEAR. IT MUST BE DEALT WITH. YOU CAN ONLY COURT DISASTER FOR SO LONG.

A SPECIAL REPORT ON ENERGY FROM THE SENATE'S DEMOCRATIC POLICY COMMITTEE DURING THE LAST CONGRESS SAID, "THE UNITED STATES IS HEADING FULL SPEED INTO ANOTHER ENERGY CRISIS AND ITS ACCOMPANYING NIGHTMARES".

THE REPORT ADDED THAT THE UNITED STATES NOW HAS AN ENERGY POLICY "DICTATED BY OPEC PRICING PRACTICES, WITH THE LOOMING POTENTIAL FOR THE SAME CONSEQUENCES WE EXPERIENCED IN 1973 AND 1979."

FOLLOWING THE TWO ENERGY CRISES OF 1973 AND 1979, THE GOVERNMENT IN BOTH REPUBLICAN AND DEMOCRATIC ADMINISTRATIONS, DEVELOPED A VARIETY OF PROGRAMS AND POLICIES DESIGNED TO MOVE THE NATION TOWARD A LARGER DEGREE OF ENERGY INDEPENDENCE.

THEY INCLUDED THE SYNTHETIC FUELS DEVELOPMENT PROGRAM, INCREASED FEDERAL SUPPORT FOR OTHER ALTERNATIVE ENERGY TECHNOLOGIES AND FOR ENERGY CONSERVATION MEASURES.

THEY ALSO INCLUDED ELECTRICAL APPLIANCE EFFICIENCY STANDARDS, PROGRAMS TO ENCOURAGE CONVERSION TO COAL-FIRED BOILERS AND FULL DEVELOPMENT OF THE STRATEGIC PETROLEUM RESERVE.

YET, AS THE JOINT ECONOMIC COMMITTEE SAID IN ITS ANNUAL REPORT FOR 1987, ALL THE PROGRESS MADE SINCE 1981 IN REDUCING CONSUMPTION OF IMPORTED OIL WAS CANCELLED OUT BY 1986 WHEN IMPORTED PETROLEUM ACCOUNTED FOR 37 PERCENT OF TOTAL U.S. DEMAND. TODAY IT'S OVER 40 PER CENT.

THAT IS A HIGHER PERCENTAGE OF IMPORTED OIL THAN AT THE HEIGHT OF THE 1973 ARAB OIL EMBARGO WHEN IMPORTED PETROLEUM CONSTITUTED 35 PER CENT OF AMERICAN OIL CONSUMPTION. AND OUR PERCENTAGE OF IMPORTED PETROLEUM CONTINUES TO RISE.

WHAT'S MORE THE ENERGY INFORMATION ADMINISTRATION OF D.O.E. WARNED IN ITS MOST RECENT ANNUAL REPORT THAT IMPORTS COULD RISE TO 55% BY 1994 AND TO MORE THAN 60% BY THE TURN OF THE CENTURY.

AT ONE TIME IT WAS WIDELY BELIEVED THAT THE ANSWER TO DWINDLING DOMESTIC OIL SUPPLIES WAS NUCLEAR POWER. BUT WE ALL KNOW WHAT HAPPENED TO THAT DREAM OF ENDLESS ENERGY SUPPLY.

AND THERE IS NOTHING TO SUGGEST THAT THE OVERWHELMING OBSTRUCTIONS TO NEW NUCLEAR FACILITIES WILL DISAPPEAR IN THE NEAR OR FORSEEABLE FUTURE.

SO WHERE DO WE TURN? TO MANY OF US THE ANSWER IS OBVIOUS. WE TURN TO COAL.

WE HAVE COAL RESOURCES UNMATCHED BY ANY NATION ON EARTH. ONE-THIRD OF THE KNOWN COAL RESOURCES ARE LOCATED RIGHT HERE IN THE UNITED STATES AND THEY WILL LAST FOR HUNDREDS OF YEARS.

ANYTHING WE CAN DO TO PROMOTE INCREASED USE OF COAL TO REPLACE OIL IN THE POWERPLANT OF AMERICAN INDUSTRY, ESPECIALLY IN THE PRODUCTION OF ELECTRICITY, SHOULD BE DONE AND DONE FORTHWITH.

AND, GENTLEMEN, I SUBMIT THE BILL YOU HAVE BEFORE YOU IS THE SINGLE MOST IMPORTANT MEASURE THAT WILL ULTIMATELY PROVIDE INCENTIVE FOR INDUSTRY TO BUILD AND OPERATE COAL-FIRED BOILERS RATHER THAN OIL-FIRED BOILERS.

ONE OF THE MAJOR STUMBLING BLOCKS HAS BEEN AND CONTINUES TO BE THE SOARING COSTS OF TRANSPORTING COAL FROM THE MINE TO THE BOILER.

THAT IS NOT TO SAY THAT COAL PIPELINES ARE ALWAYS MORE ECONOMICAL THAN RAILROAD CARS OR BARGES.

BUT AS THE OFFICE OF TECHNOLOGY ASSESSMENT POINTED OUT IN ITS STUDY, SOMETIMES PIPELINES CAN DO THE JOB BETTER AND CHEAPER.

THIS BILL WILL MAKE COAL MORE READILY AVAILABLE TO AMERICAN INDUSTRY.

IT WILL INCREASE COAL TRANSPORTATION OPTIONS BY REMOVING A BARRIER TO ENTRY FOR NEW COMPANIES WHO SIMPLY WANT A CHANCE TO PROVIDE HEALTHY COMPETITION IN THE TRANSPORTATION OF COAL.

PIPELINES HAVE CLEARLY BEEN DEMONSTRATED TO BE ONE OF THE SAFEST, MOST RELIABLE AND MOST ECONOMICAL HAULAGE METHODS EVER DEVELOPED.

THEY ARE COMPOSED OF WELDED SECTIONS OF STEEL PIPE BURIED DEEP UNDER THE GROUND.

THEY PROVIDE AN UNINTERRUPTED SEAMLESS HAULAGE SYSTEM WITH EXTRAORDINARY INTEGRITY. THE LINES ARE VIRTUALLY IMMUNE FROM MISHAP.

COAL SLURRY PIPELINES ARE ALMOST IDENTICAL IN DESIGN TO GAS AND LIQUID LINES. THE ONLY REAL DIFFERENCE IS IN THEIR PUMPS.

COAL SLURRY PUMPS ARE SPECIALLY DESIGNED TO HANDLE THE MIXTURE OF WATER AND PULVERIZED COAL WHICH IS GROUND ABOUT AS FINE AS SUGAR. THE REST OF THE PIPELINE SYSTEM IS VIRTUALLY THE SAME. THERE IS NOTHING COMPLICATED OR EXPERIMENTAL ABOUT THE COAL SLURRY LINES.

THE LONGEST COAL SLURRY PIPELINE NOW OPERATING RUNS FROM THE BLACK MESA, ON THE NAVAHO INDIAN RESERVATION IN ARIZONA, TO THE MOHAVE POWER PLANT ON THE COLORADO RIVER IN SOUTHERN NEVADA. THE LINE IS 273 MILES LONG. IT CONSISTS OF WELDED STEEL PIPE EIGHTEEN INCHES IN DIAMETER.

IT STARTED OPERATION IN 1970, AND IT HAS RARELY BEEN SHUT DOWN, MAINTAINING AN AVAILABILITY OF BETTER THAN 99 PER CENT.

THE ENERGY EFFICIENCY OF A COAL SLURRY PIPELINE IS 96 PER CENT.

IN OTHER WORDS, ONLY FOUR PER CENT OF THE ENERGY VALUE OF THE COAL IS ABSORBED IN THE HAULAGE PROCESS. AND UNLIKE MOST TRANSPORTATION SYSTEMS, THIS ENERGY IS SUPPLIED BY THE COAL ITSELF, IN

THE FORM OF ELECTRICAL ENERGY TO RUN THE PUMPING STATIONS.

I MIGHT POINT OUT THAT PUMPING STATIONS ARE BUILT EVERY FIFTY TO ONE HUNDRED MILES ALONG THE PIPELINE ROUTE, DEPENDING UPON THE TERRAIN.

THE BILL BEFORE YOUR COMMITTEE PROVIDES AN ALTERNATIVE SYSTEM FOR DELIVERING COAL TO BULK USERS THAT IS COMPETITIVE, EFFICIENT AND ENVIRONMENTALLY SOUND.

IT CALLS FOR NO GOVERNMENTAL SUBSIDY, NO EXPENDITURES OF FEDERAL REVENUE, STRICT COMPLIANCE WITH ALL ENVIRONMENTAL PROTECTION STATUTES AND EXPRESSLY DELEGATES TO THE STATES THE POWER TO REGULATE THE USE OR EXPORT OF WATER IN THE INTERSTATE COAL SLURRY PIPELINE SYSTEM.

THIS LEGISLATION GIVES NO GUARANTEE THAT A PIPELINE WILL BE BUILT. IT WILL ONLY ENSURE THE RIGHT TO COMPETE FOR THE TRANSPORTATION OF COAL FROM THE MINE MOUTH TO THE USER.

WE BELIEVE ENACTMENT OF THIS LEGISLATION WILL ENHANCE NATIONAL ENERGY SECURITY AND, AT THE SAME TIME, LOWER THE COST OF ELECTRICITY TO THE CONSUMER WITHOUT THE EXPENDITURE OF SCARCE FEDERAL DOLLARS --- A POINT WHICH CANNOT BE OVEREMPHASIZED.

THIS BILL ALSO HAS THE POTENTIAL TO REVITALIZE THE SUFFERING AMERICAN STEEL INDUSTRY BECAUSE OF THE NEED FOR STEEL PIPE IT WOULD CREATE.

IT WOULD PROVIDE JOBS IN CONSTRUCTION AND MANUFACTURING INDUSTRIES.

AND, IT WOULD REDUCE OIL IMPORTS AND INCREASE COAL EXPORTS, THEREBY HELPING TO REDUCE THE ENORMOUS TRADE DEFICIT FROM WHICH ALL INDUSTRY AND ALL CONSUMERS CONTINUE TO SUFFER GRIEVOUSLY.

IN ORDER TO GIVE THE COMMITTEE SOME INSIGHT INTO THE JOBS IMPACT OF THE BILL BEFORE YOU, LET ME CITE THE STATISTICS DEVELOPED BY THE BECHTEL CORPORATION SHORTLY BEFORE THE 1983 VOTE ON A SIMILAR BILL.

USING STANDARD BUREAU OF LABOR STATISTICS METHODS IT WAS ESTIMATED THAT CONSTRUCTION OF SEVEN PIPELINES THEN UNDER CONSIDERATION WOULD HAVE CREATED 50,000 JOBS FOR CONSTRUCTION WORKERS.

THAT MEANS PIPEFITTERS, OPERATING ENGINEERS, LABORERS, TEAMSTERS, BOILERMAKERS, CARPENTERS, ELECTRICIANS, IRON WORKERS, CEMENT MASONS, MILLWRIGHTS, AND OTHERS.

ANOTHER 100,000 JOBS WOULD HAVE BEEN CREATED IN THE CONSTRUCTION SUPPORT SECTOR AND ANOTHER 350,000 IN THE PRODUCTION OF VALVES, PUMPS, STEEL AND HEAVY EQUIPMENT FOR A GRAND TOTAL OF 500,000 JOBS FOR THE SEVEN PIPELINES.

IT HAS BEEN ESTIMATED THAT $2,817,000,000 IN WAGES WOULD HAVE BEEN PAID JUST TO THE 50,000 CONSTRUCTION WORKERS IF THOSE SEVEN PIPELINES HAD BEEN BUILT.

DEFEAT OF THAT 1983 BILL, IN EFFECT, ALSO CANCELLED THE NEED FOR 2.9 MILLION TONS OF STEEL PIPING.

THAT FIGURE REPRESENTS TWICE THE ANNUAL AVERAGE IN THE 1970'S FOR THE PRODUCTION OF LINE PIPE.

AND REMEMBER THAT THE CREATION OF JOBS GOES FAR BEYOND THE INITIAL CONSTRUCTION OF PIPELINES.

FOR MANY UTILITIES, LOWERING THE DELIVERED PRICE OF COAL WOULD PROVIDE INCENTIVE FOR EXPANDING EXISTING POWER PLANTS AND EVEN BUILDING NEW COAL-FIRED PLANTS.

FURTHERMORE, COAL PIPELINES ARE PARTICULARLY WELL SUITED TO DELIVER COAL TO SHIPS FOR THE EXPORT MARKET -- A MARKET THAT IS SITTING THERE FOR AMERICAN COAL PRODUCERS.

JOBS WOULD BE CREATED TO BUILD NEW MARINE TERMINALS AND SHIPYARD WORKERS WOULD BENEFIT FROM AN INCREASED NEED FOR BARGES, TANKERS AND OTHER OCEAN-GOING VESSELS. IT IS ESTIMATED, I MIGHT ADD, THAT JAPAN ALONE WILL ACCOUNT FOR 50 PER CENT OF THE WORLD'S STEAM COAL DEMAND BY 1990.

AS I SAID TO THIS SAME COMMITTEE IN 1987, "WOULDN'T IT BE A NICE CHANGE TO SELL MORE AMERICAN COAL TO JAPAN THAN THEY SELL CARS TO US?"

BUT IN ORDER TO DO THIS WE MUST BE MORE COMPETITIVE WITH FOREIGN COAL PRODUCERS, AND PIPELINES WILL HELP MOVE US IN THAT DIRECTION.

IT IS THE HEIGHT OF ABSURDITY THAT EVEN AS WE ARE CALLED THE SAUDI ARABIA OF COAL BECAUSE OF OUR ENORMOUS COAL RESOURCES, WE ARE ONE OF THE WORLD'S LEADING IMPORTERS OF COAL AT AN ANNUAL RATE OF ABOUT 2 MILLION TONS.

IN AN EVEN MORE PESSIMISTIC REPORT, THE COMMERCE DEPARTMENT HAS

WARNED THAT WE COULD BE IMPORTING AS MUCH AS 17.7 MILLION TONS OF COAL BY 1990.

ON THE OTHER SIDE OF THAT LEDGER, AMERICAN COAL EXPORTS HAVE FALLEN FROM A PEAK OF 113 MILLION TONS IN 1981, AND NO SIGNIFICANT IMPROVEMENT IS EXPECTED BY D.O.E. IN THE YEARS IMMEDIATELY AHEAD.

IF THIS BILL IS ENACTED, I BELIEVE WE CAN REVERSE THOSE TRENDS AND I BELIEVE THERE WILL BE PLENTY OF COAL TO KEEP ALL THE MODES OF TRANSPORTATION BUSY.

THE RAILROADS' SCENARIO OF DISASTROUS CONSEQUENCES IN THAT INDUSTRY SIMPLY DOES NOT SQUARE WITH THE TWO MOST IMPORTANT GOVERNMENT AND CONGRESSIONAL REPORTS ASSESSING THE IMPACTS OF COAL PIPELINES. THESE GOVERNMENT ASSESSMENTS ARE CONTAINED IN REPORTS RELEASED BY THE ENERGY INFORMATION ADMINISTRATION IN 1985 AND BY THE OFFICE OF TECHNOLOGY ASSESSMENT ALMOST A DECADE EARLIER IN 1978.

THE BOTTOM LINE CONCLUSIONS OF THESE TWO REPORTS ARE INSTRUCTIVE. THE EIA REPORT PROJECTED A 230 MILLION TON RISE IN COAL PRODUCTION FROM 1984 to 1995, OUT OF WHICH IT ESTIMATED THAT THE MARKET WOULD SUPPORT FOUR PIPELINES TO CARRY ABOUT ONE-THIRD OF THE INCREASE. EIA CONCLUDED THAT, IF THESE FOUR COAL PIPELINES WERE IN OPERATION BY 1995, "RAILROAD REVENUES FROM COAL CARRIAGE WOULD STILL BE ALMOST 60 PERCENT HIGHER AND RAILROAD TON-MILES NEARLY 30 PERCENT HIGHER IN 1995 THAN IN 1984."

THE OTA REPORT REACHED THE SAME CONCLUSION A DECADE EARLIER. THIS REPORT SAID THAT "...RAILROAD ECONOMIC PERFORMANCE WILL BENEFIT FROM INCREASES IN COAL AND OTHER COMMODITY TRANSPORTATION REVENUES EVEN IN THE PRESENCE OF PIPELINES."

NOR DOES THE OVERALL EMPLOYMENT PICTURE COMPORT WITH THE SCENARIOS OF DISASTROUS CONSEQUENCES PAINTED BY OUR BROTHERS AND SISTERS IN THE RAILROAD INDUSTRY. THE OTA REPORT CONCLUDES -- JUST AS THE BECHTEL STATISTICS I CITED BEFORE WOULD INDICATE -- THAT THE NET IMPACT OF DIRECT OPERATING EMPLOYMENT OF RAILROADS AND PIPELINES AND THE INDIRECT EMPLOYMENT EACH TRANSPORTATION MODE GENERATES IN CONSTRUCTION AND EQUIPMENT MANUFACTURING IS POSITIVE FOR THE 20-YEAR PERIOD THEY STUDIED.

THIS IS SO EVEN THOUGH RAILROADS OVERALL ARE MORE LABOR INTENSIVE THAN PIPELINES BECAUSE OF THE DEMAND THAT PIPELINES GENERATE IN THE CONSTRUCTION AND EQUIPMENT MANUFACTURING SECTORS OF OUR ECONOMY. ACCORDING TO OTA: "FOR THE PERIOD 1980-90 JOB POSITION REQUIREMENTS ARE GREATER FOR PIPELINES THAN FOR RAILROADS. AFTER 1990 RAILROADS WILL GENERATE MORE JOBS THAN PIPELINES, BUT RAILROAD REQUIREMENTS DO NOT EXCEED THE CUMULATIVE TOTAL FOR PIPELINE JOB REQUIREMENTS UNTIL 2000."

THIS FINDING IS PARTICULARLY IMPORTANT IF WE ARE TO ACHIEVE BALANCED ECONOMIC GROWTH. CLEARLY, THE FINDING DEMONSTRATES THAT WE AS A NATION DO NOT HAVE TO CHOOSE BETWEEN BEING PRODUCERS OF PIPE, PUMPS, VALVES AND PRODUCERS OF RAILROAD CARS. A MIX OF

TRANSPORTATION MODES WILL ALLOW US TO PRODUCE BOTH WITH A POSITIVE EMPLOYMENT IMPACT, STIMULATING ALL SEGMENTS OF OUR BASIC INDUSTRIES, CONSTRUCTION AND CAPITAL GOODS SECTOR. THE MARKET IS BIG ENOUGH FOR THE BROTHERS AND SISTERS OF THE RAILROAD AND PIPELINE INDUSTRIES TO SHARE, THOUGH IT WILL NEVER BE SHARED EQUALLY, OF COURSE.

EVEN THE MOST OPTIMISTIC FORECASTS FROM THE 1978-1984 PERIOD SUGGEST THAT PIPELINES WOULD BE COMPETITIVE ENOUGH TO CARRY ONLY A SMALL PERCENTAGE OF ALL THE COAL TRANSPORTED.

IN ANY CASE, SINCE WHEN DOES FEAR OF COMPETITION CARRY THE DAY IN AMERICA? SINCE WHEN DO WE SAY MONOPOLY IS GOOD AND COMPETITION IS BAD?

IN THE HAULING OF COAL, THE MARKETPLACE IS NOT FREE. THAT'S WHY THE NATION NEEDS THIS BILL.

WITHOUT THE KIND OF CONTROLLED EMINENT DOMAIN PROCEDURE THIS BILL PROVIDES, THE RAILROADS WILL CONTINUE TO FORCE PIPELINE DEVELOPERS INTO ENDLESS AND EXPENSIVE LITIGATION THAT HAS MADE PIPELINE CONSTRUCTION NON-FEASIBLE UP TO THE PRESENT MOMENT.

THE AMERICAN PEOPLE AND AMERICAN INDUSTRY MUST NO LONGER BE DENIED THE RIGHT TO DECIDE FOR THEMSELVES WHETHER THEY CAN OR CANNOT MAKE USE OF COAL SLURRY PIPELINE TECHNOLOGY.

DURING THE LAST CONGRESS WHEN I TESTIFIED BEFORE YOUR COMMITTEE, I SAID IT WAS OUTRAGEOUS THAT THE RAILROAD INDUSTRY--USING PROPERTY RIGHTS CEDED TO IT BY GOVERNMENT--HAS GOTTEN AWAY WITH BLATANT OBSTRUCTIONIST TACTICS.

MR. CHAIRMAN, IN THAT RESPECT AT LEAST, THINGS HAVE CHANGED.

THE RAILROADS ARE NOT GETTING AWAY WITH IT. THEY ARE FINALLY PAYING FOR THOSE UNDERHANDED TACTICS AND THEY ARE PAYING DEARLY.

JUST TWO WEEKS AGO, AS THE COMMITTEE KNOWS, A FEDERAL COURT IN TEXAS RULED THAT SANTA FE SOUTHERN PACIFIC HAD CONSPIRED TO BLOCK

CONSTRUCTION OF A 1,400-MILE PIPELINE CARRYING COAL FROM WYOMING TO TEXAS AND ARKANSAS.

SANTA FE WAS ORDERED BY A JURY TO PAY $345 MILLION TO ENERGY TRANSPORTATION SYSTEMS, INC. FOR ITS PART IN THE CONSPIRACY.

UNDER ANTITRUST LAWS, SANTA FE COULD PAY TRIPLE DAMAGES, OR $1.035 BILLION.

EARLIER, THE OTHER RAILROADS NAMED AS CONSPIRATORS IN THE ETSI SUIT, CHOSE PRUDENCE OVER VALOR AND SETTLED OUT OF COURT.

THIS INCLUDED BURLINGTON NORTHERN FOR $175 MILLION, KANSAS CITY SOUTHERN FOR $69 MILLION, CHICAGO AND NORTH WESTERN FOR $15 MILLION, AND UNION PACIFIC FOR AN UNDISCLOSED AMOUNT.

THE RAILROADS WERE ALSO SUED BY HOUSTON LIGHTING AND POWER.

THEY SETTLED THAT ONE FOR SOME $112 MILLION.

IT IS MY UNDERSANDING THAT THE UTILITY WILL SHARE THAT AWARD WITH ITS CUSTOMERS BY A RATE REDUCTION.

BUT ANY SAVINGS TO THOSE CONSUMERS WILL BE A DROP IN THE BUCKE COMPARED TO WHAT THEY WOULD HAVE SAVED IF THE RAILROADS HAD NOT CONSPIRED TO KILL THE ETSI PIPELINE.

FURTHERMORE, THE STATE OF SOUTH DAKOTA FILED ITS OWN LAWSUIT AGAINST JUST ONE OF THE CONSPIRATORS, KANSAS CITY SOUTHERN.

SOUTH DAKOTA, WHICH WOULD HAVE SOLD WATER FOR USE IN THE ETS PIPELINE, ACCUSED KANSAS CITY SOUTHERN OF A CONSPIRACY TO BLOCK PIPELINE CONSTRUCTION, RESULTING IN RESTRAINT OF TRADE THAT HURT INTERSTATE COMMERCE IN GENERAL AND SOUTH DAKOTA IN PARTICULAR.

THE JURY AGREED AND AWARDED SOUTH DAKOTA $200 MILLIION, AN AMOUNT THAT HAS ALREADY BEEN TRIPLED UNDER FEDERAL ANTITRUST LAWS.

ALL OF THIS I SUPPOSE PROVIDES A LITTLE BALM FOR SOME OF THOSE INJURED BY THE RAILROAD"S UNRELENTING AND UNFAIR OPPOSITION.

BUT WE SEE IT AS A STUNNING EXAMPLE OF THE TRUTH OF THE OFTEN REPEATED ADAGE, "JUSTICE DELAYED IS JUSTICE DENIED."

EVEN THOUGH THEY ARE PAYING FOR IT NOW IN THE SENSE THAT IT IS COSTING THEM SOME MONEY, I WOULD SUPPOSE THE RAILROADS STILL FEEL IT WAS ALL WORTHWHILE.

THEY DID CRUSH THE ETSI JOINT VENTURE, AFTER ALL AND HAVE CERTAINLY DISCOURAGED OTHERS WHO WOULD DARE PROPOSE ANOTHER COAL PIPELINE.

CONGRESS CAN AND CERTAINLY SHOULD PUT AN END TO THESE ABUSIVE PRACTICES BY PASSING S.318 WITHOUT FURTHER DELAY.

IT WON'T ELIMINATE RAILROAD OPPOSITION, BUT IT WILL GO A LONG WAY TOWARD ELIMINATING THEIR OPPORTUNITIES FOR FURTHER MANIPULATION AND CONSPIRACY.

ALL WE ASK IS A LEVEL PLAYING FIELD. PIPELINES DESERVE A CHANCE TO COMPETE--FAIRLY AND ABOVE BOARD.

THAT IS ALL THIS BILL WILL DO.

The **Chairman**. Thank you very much, Mr. Boede.

Mr. Otero.

STATEMENT OF JACK F. OTERO, INTERNATIONAL VICE PRESIDENT AND POLITICAL DIRECTOR, TRANSPORTATION, COMMUNICATION INTERNATIONAL UNION, ACCOMPANIED BY K.O. RICHARDSON, CHAIRMAN, RAILWAY LABOR EXECUTIVES' ASSOCIATION TASK FORCE ON COAL SLURRY

Mr. **Otero**. Thank you and good morning to you, Mr. Chairman and to all the members of the Committee.

I thank you for the opportunity to testify on S. 318. I have a prepared statement which I have asked to be put into the record. I will summarize my remarks if that is your desire.

The **Chairman**. Yes, please.

Mr. **Otero**. My name is Jack Otero. I am International Vice President and Political Director of the Transportation Communication International Union, an affiliated organization of the AFL-CIO. I appear here today on behalf of the Railway Labor Executives' Association in strong opposition to the enactment of S. 318. Accompanying me is Mr. K.O. Richardson, Chairman of the RLEA Task Force on Coal Slurry Legislation.

As you know, Mr. Chairman, the RLEA has testified many times in the past 10 years in opposition to enactment of this legislation. S. 318 would grant to private parties Federal eminent domain authority to construct coal slurry pipelines which would compete with railroads in the transportation of our nation's coal.

Testimony and documentary evidence presented to Congress over the past 10 years demonstrate that pipelines are not needed, cannot be made environmentally sound. They deplete the already overburdened water resources and their construction would contradict established Congressional policy of revitalizing the nation's railroads.

In my prepared testimony I discussed several of our objections to such legislation. Therefore this morning I will confine my remarks to what we in RLEA labor believe will be the effect upon employment by the enactment and successful implementation of S. 318. I would like to say, Mr. Chairman, for your benefit and the benefit of the members of this Committee, that all but one of the RLEA unions are affiliated to the AFL-CIO. Over the past 10 years the AFL-CIO has maintained a policy of strict neutrality regarding coal slurry pipelines. Thus, the AFL-CIO neither supports nor opposes S. 318.

Various claims have been made by the proponents of coal slurry pipeline legislation that it would produce variously between 500,000 and 375,000 new jobs, including some 150,000 construction and manufacturing jobs and that therefore S. 318 is basically a jobs bill. We strongly disagree. Senate 318, if passed, would cost many more jobs than it would create.

There is no question that enactment and successful implementation of S. 318 will affect jobs. It will create no more than 100,000 temporary—and I underscore temporary—construction jobs at any one time, unless all pipelines are constructed simultaneously and that we know is not likely to occur. Even then, the jobs created will last only until the pipelines were completed.

If coal slurry pipelines transport, as it has been claimed, some 250 million tons of coal annually, most of which would be diverted from the rails, there will be a devastating affect upon railroad employment. The railroad industry could lose as many as 100,000 permanent—and I underscore the word permanent—railroad jobs through the loss of coal traffic and the cancellation of what the railroad industry has said would otherwise be a $6.9 billion investment in hopper car and locomotive construction.

Railroad employment in this country has plummeted from 514,000 employees in July of 1981 to 308,000 in January of 1987. Railroad employment for 1988 is not available, but it is estimated to be around 307,000. The ultimate loss of anything like 100,000 additional railroad jobs would imperil, if not outright destroy, the railroad retirement system which today provides pension benefits for more than 1 million retired railroad employees and other dependents.

This Committee need not be reminded of the delicate balance which maintains the Railroad Retirement Trust Fund. Coal transport is today the primary source of railroad operating revenue. If that source of revenue is depleted it will force the railroads to increase price in other commodities, but primarily the railroads will cut back on their costs to lessen the adverse impact on the bottom lines of their profit and loss statements.

We know only too well that the first, second, third and last places that railroads look to cut costs is their work forces—the jobs of their employees. but there are other risks. The effect of this legislation on individual paralleling railroads to coal slurry pipelines could even be more severe if railroads are driven into bankruptcy or reorganization. Congress would then be faced with future Rock Island, Milwaukee and Penn Central situations.

Based upon evidence presented to Congress over the years, we are convinced that the granting of Federal eminent domain authority to private parties to construct coal slurry pipelines for private profit will result in devastating permanent losses to railroad workers, their pensions, their families and their communities. For that reason and many others discussed in our statement, the RLEA opposes enactment of S. 318.

If the Committee determines to act favorably on S.318, Mr. Chairman, we then ask that it provide for the railroad employees who may be adversely affected the same protections provided railroad employees in merger, consolidation and abandonment cases on the Interstate Commerce Act. We have attached to our statement a suggested amendment to S.318 which would accomplish that result.

I thank you for the opportunity to express our views, and for your kind attention to my remarks.

[The prepared statement of Mr. Otero follows:]

BEFORE THE
UNITED STATES SENATE
COMMITTEE ON
ENERGY AND NATURAL RESOURCES
STATEMENT OF JACK F. OTERO
ON BEHALF OF
RAILWAY LABOR EXECUTIVES' ASSOCIATION
ON
S. 318

APRIL 20, 1989

My name is Jack F. Otero. I am an International Vice President and Political Director of the Transportation• Communications International Union. I appear here today on behalf of the Railway Labor Executives' Association in opposition to the enactment of S. 318. Accompanying me is Mr. K. O. Richardson, Chairman of the RLEA Task Force on Coal Slurry Legislation.

The membership of the Railway Labor Executives' Association consists of the chief executive officers of nineteen standard national and international railway labor organizations. They are:

American Railway & Airway Supervisors Association (Division of TCU);
American Train Dispatchers Association;
Brotherhood of Locomotive Engineers;
Brotherhood of Maintenance of Way Employes;
Brotherhood of Railroad Signalmen;
Brotherhood of Railway Carmen (Division of TCU);
Hotel Employees and Restaurant Employees International Union;
International Association of Machinists and Aerospace Workers;
International Brotherhood of Boilermakers, and Blacksmiths;
International Brotherhood of Electrical Workers;

International Brotherhood of Firemen and Oilers;
International Longshoremen's Association;
National Marine Engineers' Beneficial Association;
Railroad Yardmasters of America (Division of UTU);
Seafarers International Union of North America;
Sheet Metal Workers' International Association;
Transport Workers Union of America;
Transportation•Communications International Union (TCU); and
United Transportation Union

All but one of these unions are members of the AFL-CIO. The AFL-CIO has consistently maintained a policy of strict neutrality on this type of legislation.

I appear before you today in opposition to legislation which seeks to extend the power of federal eminent domain authority to privately owned coal slurry pipeline companies. A most pernicious aspect of this proposal from the point of view of railroad employees is that it masquerades as a jobs bill. Nothing could be further from the truth. This Act, if passed, will cost many more jobs than it will create.

The private carriers advantaged by this grant of federal eminent domain authority would direct their efforts at capturing the most profitable long-haul, high-volume coal traffic; traffic traditionally transported by this nation's railroads.

It is our conviction that the passage of such legislation would not be in the public interest generally, and would, in fact, result in a net loss of jobs nationwide.

The RLEA has testified many times before on the subject of coal slurry pipeline legislation. S. 318 is very similar to those earlier legislative proposals which have consistently failed of enactment. The record already made on this subject is just about the most complete record available on any piece of legislation ever presented to the Congress. The detailed substantiated evidence supporting rejection of S. 318 as unneeded by and, indeed harmful to, the public interest we believe to be overwhelming.

The impact upon railroad industry employment caused by the existence of coal slurry pipelines must be considered from two aspects: first, the direct impact occasioned by the diversion of coal transport from trains to pipelines resulting in fewer coal positions (including car and engine construction lost as a result of the diversion); and, second, the effect of loss of revenue upon a railroad's financial health and the efforts which must be made by that railroad to bring its costs in line with its reduced income. In the railroad industry this situation has historically resulted in severe maintenance reductions by the furloughing of maintenance of way and equipment employees.

To our knowledge, the only objective study of coal pipelines ever presented to the Congress is the 1978 Report by the Congress' Office of Technology Assessment. The 1978 OTA Report has been extensively quoted and relied upon by opponents of coal slurry pipelines since its issuance. While it is now eleven years old and its statistics should be updated, we know of no evidence which would justify modification of its basic conclusions. The OTA Report concluded that the five pipelines then being considered for construction would by the year 2000 result in the loss of some 16,000 railroad jobs at a time when employment in the industry would be about 365,660. But employment in the railroad industry is today much lower than that predicted by OTA for the year 2000, having plummetted from 514,000 in July 1981 to 388,000 in January 1983 (a drop of 25% in 18 months) and to 320,000 in 1987, and an estimated 307,000 in 1988. Some 60,000 to 70,000 railroad employees are now on furlough. The Railroad Retirement Board has estimated that 1992 employment may be between 265,000 and 239,000 and in the year 2000 between 199,000 and 152,000. Consequently, in the year 2000 from about 8% to 10.5% of the work force would lose their jobs because of the construction of only 5 coal slurry pipelines.

Because of the adverse impact the construction of slurry pipelines would have on railroad employment, at a minimum an amendment to S. 318 is necessary to protect the employees affected by this Act of Congress. Such an amendment is attached to this statement. The proposed amendment would require as a condition of certification by the Secretary of the Energy under Section 4 of the Act, that the applicant provide protection to affected rail employees at least as protective of their interests as the protection afforded in rail consolidation and merger cases under the Interstate Commerce Act.

It is contended by sponsors of coal pipeline legislation that it is jobs legislation. It has been claimed that construction of planned slurry lines would produce variously 500,000 or 375,000 new jobs, including 50,000 direct construction jobs and 100,000 jobs in manufacturing; the "manufacturing jobs", of course, would be in foreign countries unless the bill contains a "Buy America" provision. Quite aside from the fact that these types of jobs would be temporary in nature, unlike the permanent railroad jobs which would be lost, the figure itself does not bear analysis when netted against the loss of railroad equipment manufacturing jobs because of diversion of coal traffic to pipelines.

The figure of 500,000 jobs was arrived at by using the Bureau of Labor Statistics input-output methodology. Sponsors and proponents took an estimate that $12 billion would be spent on pipeline construction, determined from Department of Commerce statistics what amount would be attributable to labor costs, and divided that figure by the BLS' average wage data in the heavy construction segment of the economy.

However, it is intuitively obvious that the $12 billion would not be spent all at once. It is most likely that such a sum would be spent over, at least, a five-year period, and the jobs created by the construction would not cumulate. Therefore, even viewed most optimistically, all that the expenditures on pipeline construction could realistically promise would be 100,000 jobs annually for five years. No money related to the construction of slurry lines would exist after that.

The proponents of pipelines have argued that permanent jobs will be created by continuous movement through pipelines of 250 million tons of coal annually. However, to obtain the real jobs effects of such transport, the pipeline jobs created must be netted against the attendant contraction of coal movements by rail and its adverse effect on rail employment. The rail industry has estimated that diversion to pipelines will mean that 39,000 rail equipment manufacturing jobs per year for five years will not be created. Absent pipeline construction, the railroads would invest $6.895 billion in hopper car and locomotive construction, and track improvements. This investment would yield 197,000 jobs over five years (using the BLS methodology), or 39,000 jobs annually for five years. This figure must be netted against the overall pipeline construction job figure of 100,000 annually.

In addition, the rail industry analysis based upon the BLS methodology shows that only 22,000 operating jobs will exist on the pipelines over a 30-year period, while 93,000 rail operating jobs over 30 years would be created annually but for the pipelines because rail operations are inherently more labor intensive. These figures are derived by applying the BLS methodology to projected revenues for the movement of 250 million tons of coal annually, which is the amount of coal it has been claimed the pipelines would move annually. Unit train transportation of 250 million tons of coal would yield $3.5 billion of rail revenue, while slurry pipelines would yield $3.4 billion. When the BLS methodology is applied to these revenue figures, the result is that 22,000 annual operating jobs would exist if pipelines moved the coal, while 93,000 annual operating jobs would exist if the movement was by unit trains.

It is clear that even assuming immediate construction of all slurry pipelines, which is most unlikely, the net effect of job creation would be definitely on the minus side.

The effects of individual coal slurry pipelines on employment on individual paralleling railroads could be even more severe if such pipelines were to drive such railroads into reorganization and bankruptcy. In such cases, the employees and this Congress would be faced with future Rock Island, Milwaukee and Penn Central situations.

This Committee need not be reminded of the delicate balance which maintains in the Railroad Retirement Trust Fund. In 1983 the Congress undertook the repair of the damage done to the Railroad Retirement System by sharply declining railroad employment with the cooperation and sacrifice of the rail industry--management, employees and retirees. Last year it created the Railroad Retirement Reform Commission in an effort to secure a permanent solution to that problem. Further erosion of rail employment occasioned by diversion to pipelines could doom these congressional efforts to failure. A general revenue bail-out of the Trust Fund cannot be ruled out as a possibility should that occur.

Quite aside from the adverse effect on employment, rail labor is concerned that S. 318 contemplates bypassing the Interstate Commerce Commission in the proposed certification process. We respectfully submit that the Secretary of Energy is ill equipped to deal with the weighty common carriage transportation considerations which should be part of this bill procedurally. The Secretary simply has no experience or expertise in determining a future economic impact upon rail transport and the effects of that impact upon our rail system and the shippers of coal and non-coal commidities.

The testimony and documentary evidence which have been presented to the Congress over the past ten years demonstrate conclusively that coal slurry pipelines are not needed; they cannot be made environmentally sound; they deplete already overburdened water resources; they represent a specialized, inflexible use of energy; their construction would contradict established Congressional policy of revitalizing the nation's railroads; and, would provide private carriers the combined advantages provided private and common carriers without the attendant disadvantages of either. That testimony and evidence also demonstrate that railroads can meet the increase in demand for coal transportation at rates probably lower, but at least comparable to pipeline rates; and, that railroads are at least as energy efficient, it not more energy efficient, than pipelines.

If pipelines are afforded federal eminent domain authority, railroads will be placed at a disadvantage that seriously will handicap their ability to compete. The only way to avoid the destructive competition which would result from private coal slurry pipeline companies' use of eminent domain authority is to recognize now that pipelines do not offer needed or improved coal transportation, while at the same time, they would undermine the financial stability and service availability of the nation's railroads. We respectfully submit that that is too high a price to pay for an alternative system of transportation that can produce no measurable improvement over what can be provided by the existing railroad system.

In closing, I would like to refer to the detailed report issued in 1978 by the Subcommittee on Transportation and Commerce of the House Committee on Interstate and Foreign Commerce following extensive hearings on H.R. 1609, one of the many predecessors of S. 318 and its counterpart in the House, H.R. 402. That report concluded: "Federal promotion of coal slurry pipelines in the manner contemplated in H.R. 1609 would undermine the national transportation policy and, with it, the system of common carriage."

Thank you for this opportunity to present to you the views of the RLEA on this important subject.

AMENDMENT TO S. 318

At the end of the Section 4, insert the following as a separate subsection (k):

> If the application is approved, the Secretary shall require as a condition of the certification that the applicant provide a fair arrangement for the protection of employees of rail carriers affected as a result of the issuance of such certification, including terms at least as protective of the interests of such employees as the terms required under section 11347 of Title 49.

The CHAIRMAN. Thank you very much, Mr. Otero. Mr. Otero, what is the cheapest—the cheaper way to transport coal between railroads and coal slurry pipelines?

Mr. OTERO. Mr. Chairman, I am not an expert on this matter, as I am here today representing the interest of my employees and the more than 1,300,000 railroad retirees who would be adversely affected by this legislation.

Perhaps you could ask that question to Mr. Dempsey of the AAR who is a witness behind me.

The CHAIRMAN. You have certainly done a good job of testifying today. And you can report back that you are a very good spokesman for your people.

Maybe Mr. Boede would have a view on that.

Mr. BOEDE. Yes, sir, I certainly would.

First of all, I think that just the matter of competition is the healthy thing. I feel, at this particular point in time, that we can transport that coal a lot cheaper through slurry lines than they can by railroad.

We are willing to gamble in that regard. I understand there is nothing mandatory about building these slurry pipelines. If, in fact, they are not profitable, and there is not a dollar to be made, these slurry lines are not going to go ahead.

It is private enterprise, it is competition. It has to reduce the price of transporting coal.

The CHAIRMAN. Otherwise they could not build them?

Mr. BOEDE. That is exactly right.

The CHAIRMAN. Senator McClure?

Senator MCCLURE. Mr. Chairman, first, I have a very brief opening statement I would like to have included in the record at an appropriate place.

The CHAIRMAN. Without objection.

Senator MCCLURE. Just a couple of points that I made in that statement. One is that I have long supported coal slurry pipeline legislation as being necessary. And that is particularly true with respect to the provisions that have been added to the bill in our past markups that protected the states 'water rights, with respect to the water issue.

And the other is, on the latter point that you make on competition. Frankly, while I support coal slurry legislation, I also want to enhance competition in other ways as well.

And I make reference to the 2(c) provision, because I think that is anti-competitive, and clearly so. And therefore, I would hope that the committee will once again do what it has done in the past, and that is include a repeal of 2(c) in the legislation when it is passed.

Mr. Otero, while I understand that you did not feel qualified to answer the question with respect whether pipeline transportation is cheaper for coal, I have to assume that you have made the assumption that it would be cheaper or there would be no job loss?

Mr. OTERO. Well, I would say to you that the railroads are doing a very good job today of transporting the coal all over the country.

And the concern that we have, Mr. Chairman, is if the railroads lose a significant amount of that revenue, which, in my opinion, I hear is more than 40 percent of their total revenue in the transportation of coal, they would have to look elsewhere to reduce their costs in order to remain operational. And that, as a result of that, we, the workers, would be adversely affected by the loss of employment.

Senator **McClure**. I understand that. And I think that you are entitled to try to protect the members of your union, the workers for the railroad. You are entitled to do exactly what you are doing. I understand that.

But I would also say, it is almost a given, if you do not believe that coal slurry is cheaper transportation, they would not be successful; there would be no competitors; they would cost no jobs.

I think that is inherent in your testimony, although certainly I understand the reason why you do not want to enhance the position of your competitor. And I do not blame you for that. I understand that. You have to be concerned about your own membership.

You have both been very good spokesman for your points of view. And thank you very much for your testimony.

The **Chairman**. Senator Rockefeller?

Senator **Rockefeller**. Thank you, Mr. Chairman.

Mr. Otero, I might just ask this. We have heard it argued that slurry pipelines will bring Western coal into the East, which, in turn would further raise already high mining and rail unemployment rates.

Now, you have just indicated that you are not an expert on coal. Slurry advocates say that such pipelines will be uneconomic. Do you have any knowledge at all about pipeline proposals for transporting Western coal East?

Mr. **Otero**. Mr. Chairman, to the best of my knowledge, no pipelines have been constructed since 1978.

Senator **Rockefeller**. I understand that. But, in terms, have you heard?

Mr. **Otero**. And there are no other, to my knowledge, there are no other plans presently in effect to build a pipeline.

Senator **Rockefeller**. Thank you, Mr. Chairman.

The **Chairman**. Senator Burns?

Senator **Burns**. Thank you, Mr. Chairman.

I have a little opening statement that I would include in the record. And I would like to say at this time, I am new in this committee and I appreciate holding these hearings because I understand it has been hashed and rehashed, and I appreciate it, because I realize that there are probably other places that you would like to be today. But I certainly appreciate this.

I think as this debate goes on, that the question from the Senator from West Virginia will probably—he is a coal state and so am I, but I had some questions about the legislation in regard to water rights and this type thing, and do we have enough water to move. We know we have got enough coal to move. And my question was along the line of Senator McClure's, and I think you answered that very ably. So I have no questions for this panel.

But I do want to express my appreciation to the chairman and the ranking member for having these hearings so that I can hear the story, too.

And thank you very much, Mr. Chairman.

[The prepared statement of Senator Burns follows:]

STATEMENT OF HON. CONRAD BURNS, U.S. SENATOR FROM MONTANA

Mr. Chairman, I would like to thank you and Senator McClure for scheduling this hearing on Coal Slurry legislation. I am aware this issue has been discussed for many years and I appreciate your allowing members new to the Committee the opportunity to study its merits.

Mr. Chairman, Montana has the largest coal reserves in the United States. Coal production in the United States is expected to increase 16.5 percent during the next eight years, reaching 1.068 billion short tons in 1995. This nation's use of coal to meet its energy demands has increased significantly and is expected to continue.

Although we are producing more coal, U.S. exports have fallen as a percentage of the world market. Furthermore, U.S. utilities use imported coal because of its cost-effectiveness. It is generally agreed that Coal Slurry legislation would substantially lower our transportation cost making our coal more attractive to domestic utilities and foreign markets.

We must however, take into full consideration the implications of a pipeline on rail rates for commodities such as grain, which have no alternative mean of shipment. Further discussion must center upon the issue of water, a very valuable commodity to my state of Montana.

I look forward to hearing testimony from our witnesses and I again want to thank both leaders for the consideration they have shown by holding these hearings.

The CHAIRMAN. Thank you very much, Senator Burns.

Gentlemen, thank you very much for your testimony.

Our next panel is with Henry J. Brolick, vice president of Williams Technologies, Incorporated, of Tulsa, Oklahoma, who is also appearing on behalf of the Coal & Slurry Technology Association. He is accompanied by Stuart D. Serkin, executive director of the Coal & Slurry Technology Association; and also my old friend Bill Dempsey, who is president and chief executive officer of the Association of American Railroads.

I have often said that Bill Dempsey is a man of great ability and skill, the measure of his skill and ability is that he has been able to sell a very bad case all these years. [Laughter.]

Mr. Brolick.

STATEMENT OF HENRY J. BROLICK, VICE PRESIDENT, WILLIAMS TECHNOLOGIES, INC., ACCOMPANIED BY STUART D. SERKIN, EXECUTIVE DIRECTOR, COAL & SLURRY TECHNOLOGY ASSOCIATION

Mr. BROLICK. Thank you, Mr. Chairman.

Mr. Chairman and members of the committee, I am Henry Brolick, vice president of Williams Technologies and Black Mesa Pipeline, and a director of the Coal & Slurry Technology Association.

I am accompanied, as you mentioned, by the executive director of the Coal & Slurry Technology Association, Stuart Serkin.

Williams Technologies manages the operation of Black Mesa Pipeline. Our personnel have been involved in the planning and development of coal slurry pipelines and other slurry projects throughout the world since 1957, when the first long-distance slurry pipeline was built in Ohio.

Williams Technologies also has on-going activities in clean coal technology. And, obviously, we have an extensive involvement and commitment to coal and clean coal.

To the best of my knowledge, this is the first time that a representative of Black Mesa has testified on this legislation. As an observation, this is the first year that Black Mesa Pipeline has not been owned by a railroad company. Sante Fe-Southern Pacific concluded on sale of Black Mesa on May 1, 1988.

Williams Technologies' Black Mesa Pipeline and the Coal & Slurry Technology Association strongly support this Federal Eminent Domain Legislation, which will be a significant development to improving the competitive nature of coal transportation in the United States.

Black Mesa is a highly visible example of how successful a coal slurry pipeline project can be, and how it can serve to minimize the transportation costs of coal to a power generation facility.

The 273-mile pipeline transports coal from Peabody Coal Company's Black Mesa Mine near Kayenta, Arizona, to the Mohave Generating Station at Laughlin, Nevada. Black Mesa began operation in 1970, and through 1988 had transported in excess of 68 million tons of coal.

The pipeline is the only coal fuel supply for the generating facility.

The reliability of the pipeline has typically been greater than 99 percent. The successful record of operation is certainly a statement that coal water slurry technology is proven and ready for additional commercial applications to provide a reliable and safe alternative transportation mode.

A brief description of the Black Mesa operations may help in understanding the advantages of coal transportation by pipelines. The pipeline transports solid particles suspended in water in roughly a 50–50 ratio by weight. And the fluid flows at velocities in the range of 5 to 6 feet per second at ambient temperatures, which is the surrounding ground temperatures.

The facilities consist of a coal preparation plant, pump stations, receiving terminal and 273 miles of buried, coated steel pipeline.

Black Mesa has had no extended shutdowns caused by operating problems with the pipeline.

Water for the pipeline is supplied from eight 3,500-foot wells from an aquifer underlying the Hopi and Navajo Indian Reservations. The pipeline has averaged less than 3,800 acre-feet of water usage per year since it began operation in 1970.

The United States Geological Survey published Open File Report Number 81–911 in 1981, on the effects of water usage in the Black Mesa area. The pumpage drawdowns are monitored on a continuing basis, and an annual hydrology report is issued.

Roughly 70 percent of the pipeline water is separated from the coal at the generating plant. The remaining water stays with the coal as it is injected into the boilers. Water from the pipeline supplies approximately 10 percent of the total powerplant cooling water requirement.

Over the 18-year life of the pipeline there have been four leaks. None of the leaks resulted in injury or death, or caused damage to surrounding facilities of the environment. In fact, none of the leaks have required extensive cleanup operations.

We have statements from the U.S. Department of Interior, the Environmental Protection Agency, and Arizona state agencies that the coal slurry is inert, non-toxic, non-hazardous; and in most cases, a slurry spill is best left to incorporate into the environment through natural events.

The total estimated loss of coal from these leaks is 5,000 tons. It should be mentioned that coal losses for rail transit of 68 million tons of coal would be in excess of 300,000 tons of coal lost by blowout from open top rail cars. That compares to 5,000 tons of coal lost by Black Mesa in 18 years.

The pipeline presently transports coal for less than 1.4 cents per ton mile. As a result, the Mohave Generating Station is among the lowest cost coal-fired power plants in the western United States.

To demonstrate the low inflation rate of coal slurry pipelines, the original difference between the pipeline and rail tariff at the conception of the Black Mesa Pipeline was approximately 50 cents per ton, with the pipeline being the low cost transporter.

The proposed rail system involved a rail link with a distance of 400 miles, which is 50 percent greater than the length of the pipeline. The estimated tariff difference today is in the range of $6 to $8 per ton. Of course, this is an estimate, because there still is no rail service linking the mine and the generating plant.

The issue of water is probably one of the most emotionally sensitive issues concerning coal slurry pipelines. In the case of Black Mesa Pipeline, the removal of this water resource from a deep aquifer has to our knowledge not adversely affected the water availability on the Navajo Reservation for domestic use and has not prevented other industrial development.

Water from an aquifer of this depth is normally not economical for agricultural use. According to reports, the total aquifer depletion will be less than 1 percent over the life of the coal supply contract and will completely recover within 15 years after termination of pumping.

Let us remember there are a number of alternative transport medias for coal slurry pipelines that are on the horizon. Coal methanol slurries are technically feasible. Coal/liquid carbon dioxide slurry is in the development stage and holds promise for specific projects where CO_2 can be used for enhanced oil recovery.

Other possibilities as medias of coal transport are petroleum fractions and coal-derived liquids. Of course, coal/water liquids which use 50 percent less water than coal/water slurries and are direct-fired are also commercially available and merit consideration for pipeline transportation.

I might mention that coal/water fuels will likely be a direct offset to oil that's imported on the East Coast.

The proposed legislation for Federal Eminent Domain rights for coal slurry pipelines addresses the issue of water availability and will assure each project must stand on its own merits and be subject to state water rights.

Federal Eminent Domain legislation will allow the market forces to prevail. We can see that the transport of coal by slurry pipelines will not be the best alternative in all cases. However, there are a number of power plant projects within the United States where direct supply by coal slurry pipeline would have far less environmental impact and be more economical than rail transport.

In addition, the possibility of increased coal exports exists if we can reduce the U.S. inland transportation costs. We suggest we eliminate this roadblock to competition and let the market place determine the role that coal slurry pipelines will have in the U.S.

Thank you for the opportunity to give you these comments, and we submit further detailed testimony for your consideration.

[The prepared statement of Mr. Brolick follows:]

Testimony Of

Henry J. Brolick
Vice President - Williams Technologies, Inc.

On Behalf of

Williams Technologies, Inc.
and
Black Mesa Pipeline, Inc.

Before The
Committee on Energy and Natural Resources
U. S. Senate

On

S. 318
Coal Distribution and Utilization Act

Washington, D.C.
April 20, 1989

INTRODUCTORY STATEMENT

Mr. Chairman and Members of the Committee, I am Henry Brolick, Vice President of Williams Technologies, Inc. and Black Mesa Pipeline, Inc. and a Director of the Coal & Slurry Technology Association. Williams Technologies manages the operation of Black Mesa Pipeline. Our personnel have been involved in the planning and development of coal, slurry and other slurry pipeline projects throughout the world since the first long distance coal slurry pipeline in Ohio in 1957. Williams Technologies also has ongoing R&D activities in Clean Coal Technology. Obviously we have an extensive involvement and commitment to the advancement of coal and clean coal.

Williams Technologies, Black Mesa Pipeline and the Coal & Slurry Technology Association strongly support Federal Eminent Domain Legislation (as embodied in S. 318) which will be a significant development to improving the competitive nature of coal transportation in the United States.

Black Mesa Pipeline is a highly visible example of how successful a slurry pipeline project can be and how it can serve to minimize the transportation cost of coal to a power generation facility. The 273-mile pipeline transports coal slurry from Peabody Coal Company's Black Mesa Mine near Kayenta, Arizona, to the Mohave Generating Station at Laughlin, Nevada. Black Mesa began operation in 1970, and through 1988 had transported in excess of 68 million tons of coal. The pipeline is the only coal fuel supply for the power plant, and it has met the power plant demands throughout the 18-year history of the contract. The reliability of the pipeline has typically been greater than 99%. This record of successful operation is certainly a statement that coal water slurry technology is proven and ready for additional commercial applications to provide a reliable and safe alternative transportation mode.

A brief description of Black Mesa operations may help in understanding the advantages of coal transportation by pipelines. The pipeline transports solid particles suspended in water in roughly a 50-50 ratio by weight. The fluid flows at velocities in the range of 5-6 feet per second.

The facilities consist of a coal preparation plant, pump stations, receiving terminal and 273 miles of buried, coated steel pipeline. At the pipeline source the coal is received from the mine, crushed and mixed with water to the proper consistency. The initial pump station provides the energy to move the slurry through the pipeline. Additional energy input is provided by three other booster pump stations located along the pipeline. Each pump station has spare pumping facilities to ensure continuous 24 hour operation whenever necessary. In its 18 years of operation, Black Mesa has had no extended shutdowns caused by operating problems with the pipeline.

Water for the pipeline is supplied from eight 3,500-foot wells from an aquifer underlying the Hopi and Navajo Indian Reservations. The pipeline has averaged less than 3,800 acre-feet of water usage per year since it began operation in 1970 (one acre-foot is approximately 326,000 gallons). The United States Geological Survey published Open File Report No. 81-911 in 1981, on the effects of water usage in the Black Mesa area. The pumpage drawdowns are monitored on a continuing basis and an annual hydrology report is issued. Roughly 70% of the pipeline water is separated from the coal at the generating plant. The remaining water stays with the coal as it is injected into the boilers. Water from the pipeline supplies approximately 10% of the total power plant cooling water requirement.

Over the 18-year life of the pipeline, there have been four leaks. None of the leaks resulted in injury or death, or caused damage to surrounding facilities or the environment. In fact, none of the leaks have required extensive cleanup operations. We have statements from the U. S. Department of Interior, the Environmental Protection Agency and Arizona state agencies that the coal slurry is inert, nontoxic and nonhazardous; and in most cases, a slurry spill is best left to incorporate into the environment through natural events.

The total estimated loss of coal from these leaks was 5,000 tons. It should be mentioned that coal losses for rail transit of 68 million tons of coal would be in excess of 300,000 tons of coal lost by blowout from open top rail cars.

The pipeline presently transports coal for less than 1.4 cents per ton mile. As a result, the Mohave Generating Station is among the lowest cost coal-fired power plants in the western United States. To demonstrate the low inflation rate of coal slurry pipelines, the original difference between pipeline and rail tariff at the conception of Black Mesa Pipeline was approximately 50 cents per ton with the pipeline being the low cost transporter. The proposed rail system involved a new rail link with the total rail distance being approximately 400 miles, almost 50% greater than the pipeline. The estimated tariff difference today is in the range of $6.00 to $8.00 per ton. This is an estimate because there still is no rail service linking the coal mine and power generating plant.

The issue of water is probably one of the most emotionally sensitive issues concerning coal slurry pipelines. In the case of Black Mesa Pipeline, the removal of this water resource from a deep aquifer has to our knowledge not adversely affected the water availability on the Navajo Reservation for domestic use and has not prevented other industrial development. Water from an aquifer of this depth is normally not economical for agricultural use. According to reports, the total aquifer depletion will be less than 1% over the life of the coal supply contract and will completely recover within 15 years after termination of pumping.

Let us remember that there are a number of alternative transport medias for coal slurry pipelines on the horizon. Coal methanol slurries are technically feasible. Coal/liquid carbon dioxide slurry is in the development stage and holds promise for specific projects where CO_2 can be used for enhanced oil recovery. Other possibilities as a media of coal transportation are petroleum fractions and other coal-derived liquids. Of course, coal/water fuels which use 50% less water than coal/water slurries and are direct-fired are also commercially available and merit consideration for pipeline transportation.

The proposed legislation for Federal Eminent Domain rights for coal slurry pipelines addresses the issue of water availability and will ensure each project must stand on its merits and be subject to State water rights.

Federal Eminent Domain legislation will allow the market forces to prevail. We concede that transport of coal by slurry pipeline will not be the best alternative in all cases, however there are a number of power plant projects within the United States where a direct supply by a coal slurry pipeline would have far less environmental impact, and be more economical than rail transport. In addition, the possibility of increased coal exports exists if we can reduce U.S. inland transportation costs. We suggest that we eliminate this road block to competition, and let the marketplace determine the role that coal slurry pipelines will have in the U.S. Thank you for the opportunity to give these comments, and we hereby submit further detailed testimony for your consideration.

SLURRY TECHNOLOGY OVERVIEW

Slurry pipelines transport solid particles suspended in a liquid vehicle such as water or hydrocarbons. Solids are ground finely enough so that slurry in the form of a fluid can flow at velocities in the range of 5 to 6 feet per second. Such velocities are low enough to require only moderate pumping power, yet high enough to prevent "sanding out" or bedding. If the slurry is prepared correctly, there should be a boundary layer of liquid near the pipe wall which is motionless and minimizes abrasion or mechanical scraping. In addition, the particles in well-prepared slurry will settle in such a way as to facilitate restarting after a temporary shutdown.

Successful slurry hydraulics relates the variables of concentration (the ratio of solids to fluid), particle sizes, viscosity or settling rate, and velocity of flow. In its 18 years of operations, Black Mesa has had no extended shutdowns caused by operating problems with the pipeline. Throughput has increased since the early 1970's and is expected to remain relatively constant over the remaining life of the coal supply agreement.

System Description

The pipeline receives coal at its slurry preparation plant located near the mine on the Black Mesa of the Navajo and Hopi Reservations in northeastern Arizona. Slurry process water is furnished by Peabody Coal Company from deep wells located nearby. The 273-mile pipeline is divided into four segments delineated by four system pump stations. Operating facilities are continuously monitored from the master control facility by use of communication facilities located along the pipeline.

Preparation Plant

At the mine, Peabody delivers raw coal by conveyor belt to three elevated coal bins in Black Mesa's preparation plant. Each bin feeds a process line consisting of an impact crusher, a rod mill, a sump and a centrifugal sump pump. Impactors reduce the coal to 1/4 inch x 0 by dry crushing, then rod mills pulverize the coal by wet grinding to 14 mesh x 0. Slurry is formed in the rod mills where water is introduced. From the rod mill sump, slurry is pumped into one of four 630,000-gallon open top storage tanks which are equipped with mechanical agitators to maintain slurry suspension. Slurry is then transferred from storage tanks by centrifugal charge pump to the main pipeline pumps.

The Pipeline and Pump Stations

The pipeline was designed for a maximum pumping rate of 660 tons of coal per hour. At 47% solids by weight, the target flow rate is 4,170 gallons per minute at a velocity of 5.8 feet per second. If necessary, lower delivery rates can be accomplished by reducing the flow rate and/or concentration, or by inserting water slugs between batches of slurry. Transit time from the mine to the Generating Station under normal operating conditions is approximately three days. The line fill totals approximately 45,000 tons of coal.

The pipeline traverses mountainous northern Arizona terrain with elevations varying from 800 feet to 6,500 feet above sea level. The pipeline's diameter is 18 inches except along the last 12 miles where the elevation drops 3,000 feet; along this stretch the pipeline's diameter is reduced to throttle excess energy. The pipeline is constructed of conventional welded high pressure steel pipe. To accommodate varying pressures at different points along the line, as well as anticipated corrosion/erosion over time, the pipeline's wall thickness varies from 0.750 inches to 0.219 inches. The pipeline is cathodically protected and is covered by an external tape coating system which have both proven successful in providing external protection.

A water reservoir is provided at each station for use in flushing out downstream sections in case of extended shutdown.

Operations of the pump stations and the pipeline are monitored and controlled from the pipeline control room at the preparation plant. There are two resident employees at each station who provide daytime manning and 24 hour on-call availability. Locations are linked by a solid-state, "hot standby" microwave system.

Generating Plant Facilities

At the end of the pipeline, slurry is delivered into large storage tanks. Slurry is withdrawn from the tanks by centrifugal pump and transferred to a battery of centrifuges where 70% of the water is removed. The resulting wet cake then is conveyed to mills for further pulverizing. Coal is carried pneumatically by hot air to the Generating Station's combustion chambers.

Coal Supply

Peabody Coal Company has been mining coal at the Black Mesa Mine since 1970. The mine straddles the Navajo and Hopi Indian Reservations located in northeastern Arizona. Peabody's mining rights were granted by the Navajo and Hopi Indians in 1966, pursuant to two contracts that expire in 2005 coincidentally with the expiration of the Supply Agreement and the Pipeline Agreement. This agreement is expected to be extended.

Coal Demand; The Generating Station

The Generating Station, located in Laughlin, Nevada, is a 1,580 MW coal-fired electric generating facility and is not equipped to use alternate sources of fuel for power generation, except the use of natural gas for restarts.

Mohave is required to purchase all coal requirements from Peabody pursuant to the Supply Agreement. The Generating Station's actual coal demand has been as follows:

Generating Station Coal Demand
(Millions of Tons)

1970	1971	1972	1973	1974	1975
0.1(a)	1.1(a)	3.0	3.2	3.9	3.8
1976	1977	1978	1979	1980	1981
4.2	4.6	2.7(b)	3.2	3.6	3.9
1982	1983	1984	1985	1986	1987
4.8	4.4	4.5	2.3(c)	4.8	4.6
1988					
5.0					

(a) Startup.
(b) Partial shutdown of Generating Plant.
(c) Six month shutdown due to steam line rupture.

The Generating Station could burn over 5.0 million tons of coal per year. However, 1988 was the first year the burn has exceeded 5.0 million tons in any calendar year.

Employees

Black Mesa currently has 54 employees. There has been one strike by Black Mesa unionized labor. It occurred in 1985 at the time of the last contract negotiation. During the two-month strike period, Black Mesa nonunion personnel operated the pipeline without interruption.

Navajo and Hopi Indians are given employment preference on the Reservation under the terms of the Mining Leases. Indian personnel comprise the majority of employees. Employee turnover has been less than 4% per annum over the last five years.

Regulation, Environmental and Legal

Regulation

Black Mesa is a common carrier. As a coal slurry pipeline, it is subject to Interstate Commerce Commission jurisdiction rather than to regulation by the Federal Energy Regulatory Commission. Given the existence of the Pipeline Agreement and the fact that all parties are quite pleased with the present arrangement, Black Mesa is not subject to further rate regulation during the remaining term of the Pipeline Agreement.

Environmental and Legal

Water for the pipeline is supplied from 3,500-foot wells from an aquifer underlying the Navajo and Hopi Indian Reservations. The United States Geological Survey published Open File Report 81-911 in 1981 on the effects on water usage in the Black Mesa area. Water usage is currently being studied by the Office of Surface Mining, a branch of the United States Geological Survey, and other parties.

The Black Mesa Pipeline has averaged less than 3,800 A-ft. of water usage per year since it began operation in 1970. This water is mixed with the coal to form a pumpable solution for pipeline transportation. Approximately 70% of this water is separated from the coal at the Generating Station. The pipeline supplies approximately 10.0% of the total plant cooling water requirement. The remaining water for the Generating Plant is taken from the Colorado River.

Leak History

Black Mesa's pipeline leak history from the time it commenced operation to present follows in chronological order.

1. Pipeline Mile Post 222 and 244 were ruptured February 18, 1977, when Mohave Generating Station personnel closed Black Mesa's main line valve at the Generating Station without shutting the pipeline down. Black Mesa's high pressure relief system failed to function, because a rupture disc had leaked and allowed the system to become plugged. After these ruptures, a redundant low pressure relief system was installed by Mohave and a redesigned redundant high pressure relief system was installed by Black Mesa. Estimated coal loss from this rupture was 2,157 tons.

2. A leak occurred just outside the Station 4 fence (Mile Post 176.7) on February 26, 1979. The rupture was apparently caused by a pipe mill defect and/or slight flattening incurred during construction. Coal lost is estimated at 800 tons.

3. A leak occurred February 23, 1986, in a 4-inch elbow installed as a part of a temporary throttling station at Mile Post 260.3. This leak was in 0.500-inch wall pipe and resulted from high velocities across an out-of-line weld. Estimated coal loss was 1,550 tons.

4. March 4, 1986, the pipeline leaked at Mile Post 180.0. The leak was a 2.5-inch axial rupture that took place at 42% of pipe yield strength, calculating strength based on the surrounding wall thickness. Apparently a major flaw on the inside of the pipe gradually eroded away allowing the rupture. Estimated coal loss was 515 tons.

None of the above described spills have required extensive cleanup. Regarding the pipeline rupture in February, 1977, Mr. Tom Gey, Realty Specialist with the U.S. Department of The Interior, states:

> Tom Lyles of the Arizona Game and Fish Department confirms that based on a chemical analysis of a spill in Sacramento Valley in 1977, the coal slurry is inert and nontoxic. Mr. Lyles stated

> that past experience showed the material will incorporate into the environment in several months with no adverse effects.
>
> Based upon the chemical nature of the slurry, the spill is not ecologically damaging. The slurry spill does pass through two miles of the NW 1/4 of the Mt. Nutt WSA (2-24). The spill will be evident for several months until it is diluted by rains, and incorporated into the alluvial wash.

In every case of a spill, the decision of the EPA and Arizona state agencies has been "better left in place" since coal is nonhazardous, nontoxic material that represents no danger to the environment.

In a more recent development, Mr. Dale A. Altshul, Environmental Project Coordinator, Arizona State Land Department, writes:

> It is the determination of the Department that the materials transported through your pipeline and related facilities are designated as nonhazardous under current Federal and State statutes. Therefore, your pipeline is considered exempt from permitting requirements of ARS Title 49. Further, you have provided adequate information to demonstrate that coal slurry has been designated as nonhazardous in the event of spillage.

The leaks described above resulted in the estimated loss of 5,022 tons of coal during Black Mesa's 18 years of operation and over 68 million tons of coal transported. Compared to rail transportation, this figure represents a very low percentage of coal lost in transit. "Blow out" from railroad transportation is estimated to be from 0.5% to 3% depending on several factors such as distance of travel, type of coal, etc. Using the conservative estimate of 0.5%, the loss from rail cars over the 400 miles of rail route haul would have been in excess of 300,000 tons.

Pipeline Tariff

The Black Mesa Pipeline presently transports coal for less than 1.4 cents per ton mile. Therefore, as stated earlier, allowing the Mohave Generating Plant to maintain its status as the lowest cost power generator in the Western Region.

To demonstrate the pipeline's low inflation rates, initial comparisons of pipeline versus rail costs in 1970 showed a difference in tariff of less than $0.50 per ton, the pipeline being the lower cost transporter. The estimated difference today is $6.00 to $8.00, with the pipeline still providing the lower tariff. The estimated difference today is based on a rail rate of $0.025 to $0.03 per ton mile which is common for this haul distance.

One of the most positive aspects of the Black Mesa Pipeline is that it provides a method of transportation that allows the coal on the Navajo and Hopi lands to be mined, providing over 400 jobs in a region that has historically been economically depressed, thus allowing these Native Americans to remain in the area if they so desire and still maintain a good living standard.

The Black Mesa system has proven since 1970, that slurry pipelines are an economically and environmentally safe alternative to other means of transportation. In many cases, pipelines may be the only means of transportation from remote areas like the Navajo and Hopi Reservation in northeastern Arizona, where it is either uneconomical or environmentally undesirable to build a railroad.

There is always the element of competition. The Ohio coal pipeline was the first long distance coal slurry pipeline in the world running from Cadiz to Eastlake, a distance of 108 miles. The Ohio pipeline was considered a novelty by the railroads and not a threat to the revenue stream, until a larger pipeline was proposed that would run from the coal fields of West Virginia to New Jersey. It was at that time that the railroads began to realize the technology for transporting large volumes of coal via pipeline had been developed, and were forced to adopt methods of less cost to compete with slurry pipelines. Therefore, the unit-train concept was developed and subsequent defensive measures vigorously pursued.

Conclusion

The operating record of Black Mesa Pipeline clearly supports the viability of coal slurry pipelines to be a competitive, reliable and safe transporter of coal. A major reason why other coal slurry projects have not been implemented in the U.S. is Federal Eminent Domain Legislation has not been enacted. Coal slurry pipelines could provide significant economic and environmental benefits to the nation. Federal Eminent Domain Legislation will assist in letting the marketplace determine economic feasibility and we strongly support enactment of this legislation.

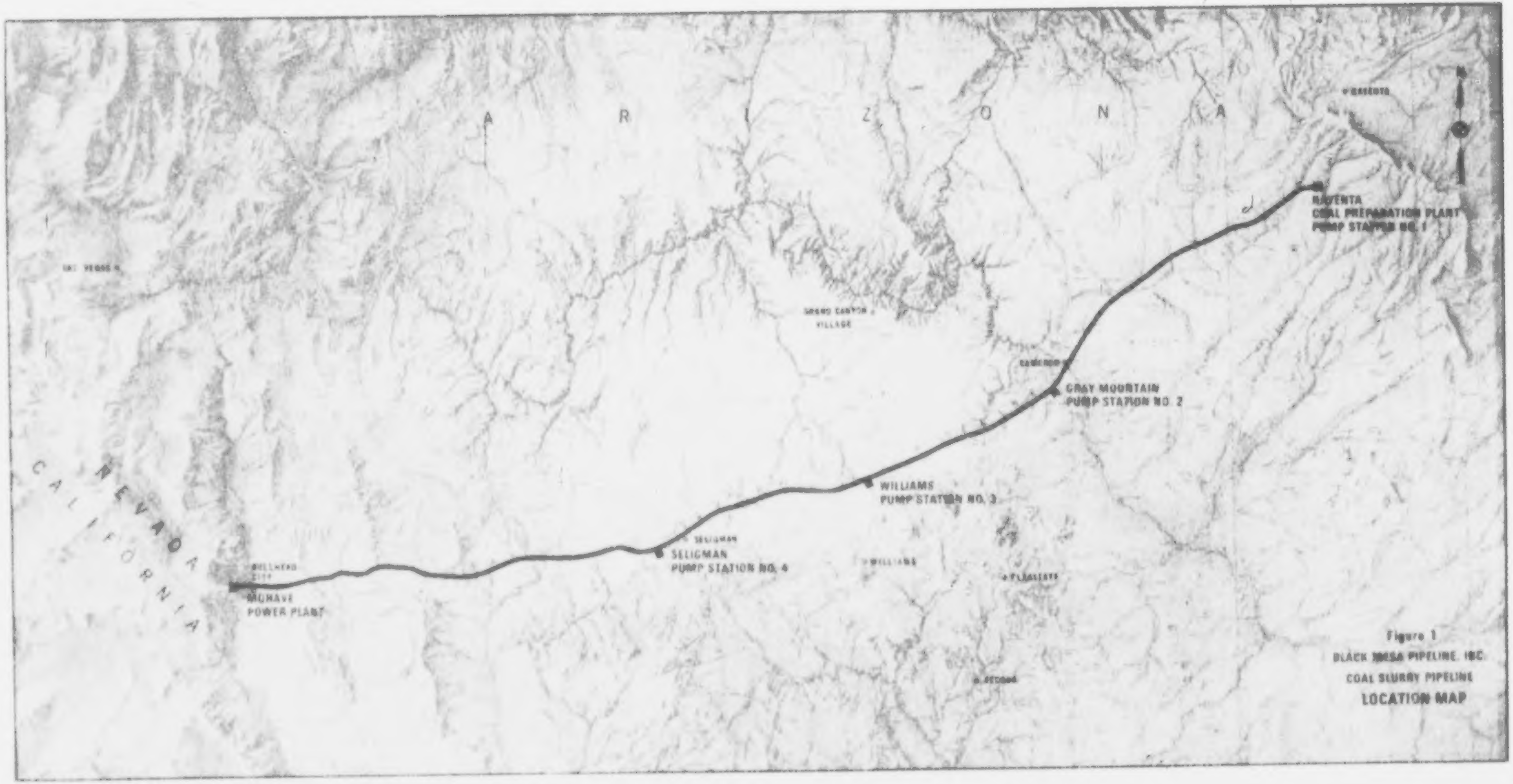
A R I Z O N A
NEVADA
CALIFORNIA
KAYENTA
COAL PREPARATION PLANT
PUMP STATION NO. 1
CAMERON
GRAY MOUNTAIN
PUMP STATION NO. 2
GRAND CANYON VILLAGE
WILLIAMS
PUMP STATION NO. 3
WILLIAMS
FLAGSTAFF
SEDONA
SELIGMAN
SELIGMAN
PUMP STATION NO. 4
MOHAVE
POWER PLANT

Figure 1
BLACK MESA PIPELINE, INC.
COAL SLURRY PIPELINE
LOCATION MAP

The **Chairman**. Thank you very much, Mr. Brolick.

Mr. Dempsey.

STATEMENT OF WILLIAM H. DEMPSEY, PRESIDENT, ASSOCIATION OF AMERICAN RAILROADS

Mr. **Dempsey**. Thank you, Mr. Chairman. I appreciate your remarks. I am only mildly disappointed because, as I recall, the last time you suggested that my board increase my salary, and I would appreciate it if you would take that into consideration. [Laughter.]

You will not be surprised to hear, nor will the committee, that I have not changed my mind and the industry has not, and that we remain strongly in opposition of this legislation.

The **Chairman**. Well, I know you cannot admit that, anyway. [Laughter.]

Mr. **Dempsey**. And get paid at the same time.

I will be brief, I have testified a number of times before. We are opposed to the legislation on fundamentally two grounds. One is that there is no need for it. And the second has to do with the adverse consequences that the legislation would have with respect to the railroads and their employees, and the shippers and communities that they serve.

As to need, when this whole matter became important about 10 years ago, as you will recall, the main argument in favor of coal slurry pipelines was that the rail industry would not be able to cope with the projected increased transportation of coal.

That, we said at the time, was clearly wrong. As as time has gone on, that has been demonstrable true. And so that argument is no longer raised, and I will pass over it.

The argument now, essentially, is, as I understand it, that the introduction of additional competition in the transportation of coal is important. And that has to do with, then, the lowering of rates for transportation of coal.

I make two points, briefly. One is that one might expect that the argument would be supported by evidence that there has been some sort of explosion in rates for the rail transportation of coal, particularly since the partial deregulation of the industry in 1980.

In fact, that is not the case. What has happened has been that, in real dollar terms, coal rates, on average, have gone down since 1980 about 10 percent. That has been just almost exactly the same reduction in rates that we have experienced with respect to all of our commodities on average.

And that has to do with all kinds of competitive factors that operate in the market place, both on the railroads and on the producers of coal.

So there is not that sort of crying need for a restraint on the rail rates for transportation of coal.

Secondly, and I think terribly importantly, it has not been mentioned yet, is the fact that under the recently adopted coal rate guidelines for the regulation of rail coal rates adopted by the Interstate Commerce Commission, in effect, the shippers of coal get the benefit of coal slurry pipeline competition without any coal slurry pipeline being built.

That is to say, under these guidelines, a shipper complaining about the level of rail rates for the transportation of coal or other commodities, if the Commission extends the rule, produces evidence with respect to what would, in the shipper's judgment, be the lowest cost, most efficient operator of that transportation service. That could be another truncated rail line, it could be a barge line, or it could be a coal slurry pipeline.

And if the evidence then establishes that a coal slurry pipeline would probably transport the coal at a lower rate than that which is proposed by the railroad, the railroad must reduce its rates to that level.

So that without replication, without the creation of redundancy in the transportation of coal, the shippers essentially have the benefit that is suggested would be produced by this bill.

As to adverse impact, Mr. Otero has discussed the question of impact on labor. I add, by way of emphasis, that because of competitive pressures, we have had to reduce our labor force in Class I railroads over the last eight years by about 40 percent. That is an enormous burden upon our employees. It is one that we are scarcely happy with.

What we are dealing with here is a threat, and a major one, to rail employment. And by way of illustration, I take you back to the 1979 report of the Office of Technology Assessment, with respect to impact on employment. That report concluded that—I am talking now about permanent jobs—for every permanent new job in the coal pipeline industry, there would be a loss of 6 to 10 permanent jobs in the rail industry.

That scarcely is a job spill, I suggest. And it is ironic that when the bill was originally proposed, many of its supporters claimed that its major advantage in terms of cost would be that coal slurry pipelines are less labor intensive than railroads, and that, therefore, because that was a time of burgeoning inflation, that cost lines between competition between rails and coal slurry pipelines would at some point cross.

As to impact on railroads, the Office of Technology Assessment, it its 1979 report, estimated that if the coal slurry pipelines then on the drawing boards were built, that the railroads would lose something in the way of $700 million a year in net revenue.

That, today, would translate into something over $1 billion a year, or two-thirds of the net operating revenues of the rail industry.

Now, the Congress if familiar with the decade of the 1970s and the efforts of the Congress and the billions of dollars in taxpayers' monies that were necessary to rescue the Northeast railroads from bankruptcy, and much of the Middle West.

The industry is not at a revenue adequate position yet. It is only about two-thirds there. And what this suggests is an invitation to return to those destructive days. The industry is simply in no position to withstand that sort of punishment.

The reaction of the industry would be obvious. We have been through this before. It would try to raise rates on other services that it performs and therefore the first victims would be other shippers. That is to say, shippers that would not be able to use coal slurry pipelines. That is to say, most shippers—the vast majority of them—and the communities that they serve.

But our experience has been clear since 1980. Notwithstanding partial deregulation, we face enormous competition and it would not be possible to raise the rates anywhere close to the level that would be necessary to recapture this net revenue. Accordingly, what would happen would be, again, the spiral of the '70s—deferred maintenance, deteriorating service, loss of shippers and the inevitable financial collapse of at least a major part of the industry.

Now I understand that is gloomy picture that I paint, but I think we speak from some experience and I do rely upon the estimates of the Office of Technology Assessment.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Dempsey follows:]

Statement of William H. Dempsey
President of the
Association of American Railroads
Before the
Senate Committee on Energy and Natural Resources
on S. 318
The Coal Distribution and Utilization Act

April 20, 1989

Mr. Chairman and members of the Committee, I appreciate the opportunity to present the views of the Association of American Railroads on S. 318, the Coal Distribution and Utilization Act.

In considering S. 318, the Committee is revisiting one of the most debated transportation issues of the last ten years: Should the Federal Government confer the privileged power of eminent domain on coal slurry pipeline companies? That question has been debated in seven of the last eight Congresses and, when subjected to a vote, has been answered in the negative. With each Congress, the argument for granting the federal power of eminent domain to coal slurry pipelines has become less persuasive.

The power of eminent domain is to be exercised or conferred by government only where it is found necessary to take private property for public uses. Because private property rights are being infringed, eminent domain is a power to be exercised only when the public's need is a compelling one.

> It is a well-settled general principle that incidental benefits accruing to the public are not sufficient to make the purpose of an improvement or enterprise a public one. Thus, where the chief, dominating purpose or use is private, the mere fact that a public use or

benefit is also incidentally derived will not warrant the exercise of eminent domain.[1]

The past attempts to enact legislation conferring the power of eminent domain on coal slurry pipeline companies have failed because quite plainly, "the chief, dominating purpose or use is private. . . ." The absence of a public purpose or use is even more evident today:

(1) There is no need for additional coal transportation capacity; and

(2) There is no need to construct slurry pipelines in order to constrain rate rates.

The disbenefits to the public, on the other hand, are substantial:

(1) Coal slurry pipelines will result in long-term employment losses;

(2) Coal slurry pipelines will impair the financial viability of the railroads and, ultimately, lead to poorer service at higher prices for most rail users;

(3) Coal slurry pipelines will hasten the depletion of one of our nations most scarce resources - its water supply.

I will address briefly each of these points.

There Is No Need for Additional Transport Capacity

Domestic production of coal in 1987 was 917 million tons. The forecasts of domestic coal production through the year 2000 which we have reviewed range from 1.1 to 1.2 billion tons.[2]

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[1] 26 Am. Jr. 2d, Eminent Domain §33 (1966).

[2] The National Coal Association forecasts 1.11 billion tons and the U.S. Department of Energy forecasts 1.17 billion tons.

At the top end of the range the forecasted growth in coal production represents an increase of only two percent per year from 1987-2000. This increase clearly will not tax the capability of the railroads. In the past ten years the railroads have annually increased the amount of coal hauled by approximately four percent, double the projected annual increase between now and the year 2000. And the railroads handled these increases in tonnage over the last ten years while the average length of haul for coal traffic grew approximately twenty-five percent.

The manufacturers of rail cars currently have the capacity to manufacture 50,000 cars yearly. During the last five years an average of only 14,000 cars were manufactured. Assuming the railroads' share of the market for the transportation of coal remains relatively constant, less than 60,000 additional hopper cars will be needed to haul the increased coal traffic. Stretched over a ten-year period this would be a de minimus requirement in light of the excess car building capacity in this country.

There Is No Need To Construct Slurry Pipelines In Order To Constrain Rail Rates

The key argument made by coal slurry promoters has been that, without coal pipelines, rail coal rates would be unreasonably high because railroads do not face competition for the transportation of coal. The facts belie that argument. Far from being unreasonably high, in the eight years since enactment of the Staggers Act, rail coal rates have failed even to keep pace with inflation and have actually declined by approximately ten percent in constant dollar terms.[3] That decrease virtually mirrors the constant dollar decrease for rates on all rail commodities which has occurred during the same period.

Like the rates on all rail commodities, coal rates are kept in check by pervasive competition among railroads and between railroads and other modes of transport, by geographic and product competition, and by the potential competition that exists from all of these forms of competition. Indeed, under the Interstate Commerce Commission's Coal Rate Guidelines,[4] any price advantage a coal slurry pipeline might have can be realized by a shipper without the pipeline ever being built. There can be no more conclusive evidence that the construction of a coal slurry pipeline does not meet the public use test demanded by a grant of the eminent domain power.

In its Coal Rate Guidelines, the Commission adopted the concept of Constrained Market Pricing or "CMP," which it explained as follows:[5]

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[3] These figures point up the essential errors in the 1985 Energy Information Administration report frequently cited by slurry proponents which estimated that by 1995 coal pipeline rates would be from $12 to $20 per ton less than 1995 railroad rates (see "Coal Slurry Pipelines: Impact on Coal Markets," April, 1985). We estimate that in 1988 the average railroad coal rate was only $12 per ton. The report also estimated that from 1984 to 1995 railroad coal revenue would increase 4.4-5.0 percent per year, excluding inflation, while from 1984 to 1988 coal revenues for Class I railroads actually decreased 6% in constant dollar terms. Other errors in the report are equally egregious.

[4] Ex Parte 347 (Sub-No. 1), Coal Rate Guidelines, Nationwide, decided August 8, 1985.

[5] *Id.* at 9.

> An important feature of CMP is that a captive coal shipper need not bear the costs of any facilities or services from which it derives no benefit. One means of assuring that such cross-subsidization does not occur is the 'stand-alone cost' (SAC) test. This test is used to compute the rate a competitor in the marketplace would need to charge in serving a captive shipper or a group of shippers who benefit from sharing joint and common costs. A rate level calculated by the SAC methodology represents the theoretical maximum rate that a railroad could levy on shippers without substantial diversion of traffic to a hypothetical competing service. It is, in other words, a simulated competitive price. (The competing service could be a shipper providing service for itself or a third party competing with the incumbent railroad for traffic. In either case, the SAC represents the minimum cost of an alternative to the service provided by the incumbent railroad.)

In plain terms, under the Guidelines any "captive" coal shipper that can show its rates would be lower if a coal slurry pipeline were built to serve it could force the railroad to lower its rate to the rate that the slurry pipeline would charge![6]

The importance of this regulatory standard to the coal slurry debate cannot be overstated. For over a decade slurry promoters have been asserting that pipeline rates would be lower than railroad rates if pipelines were built. The ICC has now provided that a railroad cannot charge a shipper more than a slurry pipeline (or any other competitor) would charge that shipper. If, indeed, a coal slurry pipeline would provide cheaper transportation, coal shippers can now force railroads to reduce their rates to coal pipeline levels without incurring the risk of a long term take or pay pipeline contract.[7] There is no need, therefore, to build a pipeline in order to get the competitive advantages of a pipeline. Under any scenario a coal pipeline would only add redundant transportation capacity and its construction would do nothing to constrain rail rates that could not be done without its construction--it would utterly fail the public use test for condemnations of private property.

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[6] Where a railroad did not have "market dominance" (e.g., the rail rate was below the statutorily prescribed rate-to-variable cost ratio), a shipper could not force a reduction in the rate by such a showing because the Commission would not have jurisdiction over the rate. The Congress denied jurisdiction for rates below prescribed variable cost levels because they were conclusively presumed to be competitive. In such circumstances, coal slurry pipelines cannot be deemed necessary to provide competition.

Coal Slurry Pipelines Will Result in Long-Term Employment Losses

A decade ago pipeline proponents were asserting that in the long run it would cost less to move coal by pipelines than by rail, because pipelines were capital intensive compared to the labor intensive railroads and, due to inflation, railroads would be more affected by rising labor costs than slurry pipelines.[8] With the onset of the unemployment problem, the pipeline proponents muted that argument and emphasized the pro-employment virtues of coal slurry pipeline legislation--over 300,000 new jobs they now allege.

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[7] Where shippers want the price stability afforded by contracts, railroads are now authorized under the Staggers Act to negotiate the prices and terms of service.

[8] For example, testifying before Congress on July 30, 1981, the President of the Slurry Transport Association noted that, contrary to the proposed pipelines, ". . .railroads have a cost structure heavily weighted by such inflationary factors as labor and fuel."

While the source of the 300,000 is not disclosed, one can surmise that it was generated by the same process as the figure of 500,000 jobs which pipeline promoters were claiming in the 98th Congress. That figure, we found, was derived by plugging into the Bureau of Labor Statistic's model for estimating the effects of ~~revenue~~ increases on various segments of the national economy--in this case heavy construction--the estimated amount of money needed to construct proposed pipelines. By doing so, one generates the number of job-years that would be needed to construct planned pipelines. So, evidently, using the BLS methodology pipeline proponents have calculated that slurry pipelines will create over 300,000 job-years. It is to be noted that this is the total number of job-years it would take to build the slurry pipelines --it is not over 300,000 jobs per year. These jobs would disappear as soon as the pipelines were built, never to reappear.

The adverse long term effect slurry pipelines would have on unemployment offsets by far the over 300,000 job-years that supposedly would be required to build slurry pipelines. In its 1978 report on coal slurry pipelines, the Office of Technology Assessment stated that six permanent railroad jobs would be lost for every permanent slurry pipeline job created.[9] Furthermore, even during the period of construction of slurry pipelines, jobs associated with the railroad industry would be lost due to discontinued construction of hopper cars and locomotives and track improvements associated with the tonnage of coal that slurry pipelines would divert from rail. In 1983, based on pipelines then projected to be built, we calculated the total of job-years lost to be in excess of 1.8 million.

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[9] Office of Technology Assessment, A Technological Assessment of Coal Pipelines, (1978), pp. 77, 78. OTA stated the pipline routes (ftn. cont'd next page)

It also should be noted that slurry pipelines would seriously affect coal miners. These pipelines generally would serve the largest mines in a few areas. Smaller, more labor intensive mines would become less competitive than those served by pipelines because their rail rates would increase as railroads sought to recover revenues lost by the diversion of traffic to pipelines.

Coal Slurry Pipelines Will Impair the Financial Viability of the Railroads And, Ultimately, Lead to Poorer Service At Higher Prices For Most Rail Users

Coal slurry pipelines are economically most attractive at long distances and high volumes. That is, of course, also true of rail operations. Consequently, the pipelines would skim the railroads' most profitable traffic, and do so without incurring the railroads' common carrier obligations to serve all shippers.

(ftn. cont'd from previous page)
studied would result in pipeline employment of between 300 and 500 for each route, or 1500 to 2500 for the five routes OTA studied. According to OTA, if the pipelines studied were constructed, in the year 2000 lost railroad employment would total 15,943. Thus, the ratio would be 6.4 railroad jobs lost for every permanent slurry job created if the highest employment figure for pipelines, 2500, is used.

Taking away the railroads' most profitable services and requiring them to continue their less profitable services can only lead to deteriorating rail services and increasing rates. The specter of deteriorating railroads should be of paramount concern to the Congress since it spent most of the decade of the 1970s seeking ways to make railroads economically viable.

This specter is not raised only by me for the purpose of this hearing. The OTA estimated that the pipelines planned at the time of its study would result in a net revenue loss to the railroads of approximately $700 million annually--$1.141 billion in 1987 dollars. Such a revenue loss would represent 65 percent of the industry's net operating income in 1987. Losses of such magnitude could not possibly be recouped through rail rate increases and could only result in the service deteriorations and bankruptcies that marked the 1970s.

The railroad industry as a whole has not reached a reasonable state of profitability. The industry's return on investment in 1987 was only 5.6 percent. Its return on equity in 1987 was 8.1 percent as compared to figures of 13.2 percent for all U.S. industry and 12.7 percent for electric utilities.

While preliminary figures for 1988 indicate an improvement in these numbers, there is still justifiable doubt as to the industry's long-run viability. The threat to viability comes from downward trends in tonnage for key commodities, increasing competition, high labor costs, and federal subsidies to competitive modes. The latter two of these threats are directly attributable to past actions of the Federal Government. Insofar as the railroad industry is concerned, it seems quite clear that the time has come for federal forebearance in attempting to influence the workings of the surface transportation marketplace. This would seem to be especially true of legislation such as S. 318 which would have the effect of encouraging new investment in unneeded coal transporting capacity and further imperiling the investment in existing capacity.

Coal Slurry Pipelines Will Hasten the Depletion of One of Our Nation's Most Scarce Resources--Its Water Supply

While coal slurry pipelines would wreak havoc on the railroad industry, they similarly would have a serious impact on the nation's water supplies.[10/] The immense amount of water required by slurry pipelines has been described in detail over the years. The basic requirement is a ton of water for a ton of coal. A 55 million ton per year pipeline would, for example, consume the entire flow of the Potomac River for one week.

The 1978 OTA study noted that in each of the pipeline origin areas it studied, except one, projected demands for water exceeded supply. The significance of this statement was driven home by the 1988 drought when water supplies could not meet the demands of agricultural and shipping interests. The drought has reduced the Mississippi River and Missouri River flows to historic

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[10/] I understand that transport media other than water are being explored but that their economic feasibility has not yet been demonstrated.

lows, and we understand that already shipping restrictions have been imposed this year on the Missouri River. The OTA study concluded that "a coal slurry pipeline could use surface water only at the expense of growth in the existing and new uses."[11] Those major competing uses would be agriculture and energy-related industries. If the Federal Government is going to establish a policy of encouraging the creation of large new water consuming entities in the face of water supplies already inadequate to competing demands, the national interest served thereby should be more compelling than any advanced thus far in behalf of coal slurry pipelines.

While S. 318 purports to give states control over the diversion of water to coal slurry uses originating in a state, it does nothing for the affected "downstream" states. Those states--which share rivers and aquifers with states willing to sell water--have no power to protect themselves under the bill even though they may find that tremendous quantities of their water supplies are being drawn for projects which adversely affect their citizens. S. 318 would take from those states the principal power they have to protect their water supplies--attaching conditions to any grant of eminent domain to a coal slurry pipeline. No stronger argument exists for leaving the exercise of eminent domain powers in the hands of the states.

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[11] At 90.

It has been three decades since coal slurry pipelines were first proposed. Over the intervening period eminent domain legislation has been proposed and debated time and time again. Curiously, the arguments put forth by the proponents of this legislation have changed. In the 1970s, slurry proponents challenged the ability of the railroad industry to transport increasing quantities of coal, asserting that slurry pipelines would be needed to meet the country's transportation needs. Studies by independent analysts such as Congress' Office of Technology Assessment predicted that railroads would meet future demands for coal transporation, and over the years the analysts have proven correct. No longer is the capacity of the railroad industry to meet the demand for its services questioned.

Another forgotten argument raised by slurry proponents is that as time passed capital intensive pipelines would become more competitive with the railroad industry. This argument was based on expectations of continuing high inflation. The theory of slurry proponents was that pipelines, with high initial fixed costs, would fare better over time than labor intensive railroads, which would see their fuel and labor expenses skyrocket with inflation. Not only is this argument no longer raised, but slurry proponents now have the effrontery to contradict their previous testimony and assert what is plainly not true, that slurry pipelines would create jobs!

Coal slurry pipeline proponents have been changing the arguments they make in favor of eminent domain legislation because they keep searching for, and have never found, an important public purpose that would be served by coal slurry pipelines. The search for a public purpose is vitally important to pipeline proponents because the finding that coal slurry pipelines serve no substantial public need means there is no justification for eminent domain legislation. Of course, pipeline proponents will continue to assert that they in fact have identified a public purpose for coal pipelines. But what is that public purpose? There is no need for transportation services that could be met only by coal pipelines. A regulatory system is in place which assures shippers of competitive prices for the transportation of coal. The facts show that not only is there no public purpose that would be served by coal pipelines, but that the construction of coal pipelines would be contrary to the public interest. Coal pipelines would adversely affect the railroad industry and shippers dependent on railroads. By shifting business from labor intensive railroads to capital intensive pipelines, slurry pipelines would greatly reduce the number of jobs available for American workers. Slurry pipelines also would severely impact the availability of water for agricultural and shipping interests already reeling from drought conditions. Clearly, the public interest requires that Congress not enact eminent domain legislation for coal slurry pipelines.

The CHAIRMAN. Thank you very much, Mr. Dempsey. Railroads are I am sure under your direction doing very, very well now. For Burlington Northern, for example, railroad revenues increased 8 percent from 1986. The 10K report says the 1987 financial and operating performance of Burlington Northern improved significantly.

Southern Pacific Transport Company operating income of 1987 was $91 million, the highest since 1982 on a depreciation basis. Consolidated Rail Corporation had a "solid financial performance'. Union Pacific earnings increased 14 percent to a record $440 million.

Norfolk Southern—excluding the special charge—net income would have been $524.2 million, or 1.1 percent over 1986. Santa Fe, "from the standpoint of financial results 1987 was a very successful year". Railroads are doing, thank goodness, very well, are they not?

Mr. DEMPSEY. No. They are doing better. What you need to do, I suggest, Mr. Chairman, is to measure the returns of the industry against what would be considered in the normal capital markets an adequate rate of return and that, as you know, is what the Commission has been charged with under the Staggers Act.

In 1987, the last year for which we have final reports, the net return on investment of the industry was 5.7 percent, to be measured against, as I recall, roughly a current cost of capital of about 11 percent. Now, last year was a better year and I am not prepared to say what I think the final figures will be, but I think they will be in the range of, let us say, 7 percent. But that is still to be measured against an adequate rate of return of roughly 11, 10.5 percent, something of that sort.

Our return on equity as an industry in 1987 was about 8 percent. That is to be measured against an average rate of return of American business of about 13 percent and utilities of about 13 percent.

So we have come back from the dark days in which our rate of return on net investment before Staggers was about 2 percent, in that range, to a much better situation and we are providing much better service to our customers because we have been able to maintain our capital plant in decent shape. But to say that we are in good shape—I wish I could say that, but we simply are not.

Now, we will have, as you point out—I hope—a couple, maybe three railroads this year—I am just guessing, but I think we may have three railroads this year that will reach an adequate rate of return and that is just fine and it is attributable in large measure to the action of Congress in enacting the Staggers Act, but as an industry we are not there.

The CHAIRMAN. I am glad you are doing better and I am sorry you have only 8 percent rate of return, but I would suggest that that is a tremendous improvement and a relatively healthy industry.

Now, it goes without saying that competition leads to lower rates for the consumer, does it not?

Mr. DEMPSEY. Yes.

The CHAIRMAN. And certainly——

Mr. DEMPSEY. Well, lower rates than what, I am not sure. Lower rates than unregulated monopoly.

The **Chairman**. Than a captive shipper, for example.

Mr. **Dempsey**. Well, I do not know about that. The question then is what standards the Interstate Commerce Commission applies in regulating. I would agree though that if there is no regulation, obviously competition probably will lead to lower rates.

The **Chairman**. Your statement that going to the ICC is the way you can build a hypothetical pipeline and get those rates sort of reminds me of the Soviet constitution which guarantees all a bill of rights. It is good in theory, but in practice you cannot do it. You cannot go to the ICC. We have a chart that is about six feet long. I am sure you can read this. But this details what the ICC procedures are and I have never been to the ICC, but they tell me do not bother to go.

Senator **Rockefeller**. Mr. Chairman, with all due respect you ought to give credit to the source of that chart.

The **Chairman**. Is that the Commerce Committee? The Rockefeller chart? I knew it was solid gold. No one has ever been to the ICC to try to build a hypothetical pipeline. They tell me it takes about——

Mr. **Dempsey**. I am sorry, Mr. Chairman. Three companies in the last two or three years have been able somehow to wend their way through all of that chart and recover in the way of damages from the ICC something like $200 million against one railroad. I guess, two.

The **Chairman**. On a coal slurry pipeline?

Mr. **Dempsey**. On a coal rate case. They chose not to construct a hypothetical coal slurry pipeline. I mean,

The **Chairman**. No one has ever tried to do that, have they?

Mr. **Dempsey**. I suggest there is a good reason for that. You construct one, you do not come out with lower rates.

The **Chairman**. Well, if you do not come out with lower rates if you construct one, why would anybody construct one and why would they be such a threat to railroads and why would all these railroads engage in a conspiracy to keep ETSI from being built?

Mr. **Dempsey**. Well, now as to the latter you understand that I know nothing about that case.

The **Chairman**. If they had had you representing them they would not have lost the case, I am sure of that—black though their souls may be.

Senator **Bumpers**. What was the judgment? A 1.3 billion? That is not going to help their viability any either, is it? It is not going to help the railroads any to have to cough up $1.3 billion.

Mr. **Dempsey**. No, and I suggest that is a sufficient disincentive without the enactment of this legislation. But as to the question, it is a very good one as put both by you, Mr. Chairman and by Senator McClure as to why is the rail industry concerned if we think that the economics are not there for coal slurry pipelines.

Well, as to the economics of coal slurry pipelines, you are not speaking to an expert, I am sure you understand. The best I can do is to refer you back to the Office of Technology Assessment report. Now, that is 10 years old.

What they did was to take four alternative scenarios and they concluded that probably under two the coal slurry pipelines and under two the rails would be cheaper, but they said they could not really tell because when you are dealing with the kind of imponderables that you are—you take the Alyeska Pipeline and the original estimate was exceeded nine times by the time they finished with construction. So they said, in effect you cannot really tell.

Now, I add to that the fact that they were operating against a high inflation scenario which favored coal slurry pipelines. So my personal view—and I think it rather is reflected by the fact that there are not any—there does not seem to be any surge of interest, really in building these things right now—my personal view is that probably the economics would not work out in favor of coal slurry pipelines.

But that has to do with cost, that does not have to do with rates and what you have to remember is that we are talking about the best kind of traffic for railroads. It is long-distance, high-volume coal movements.

Now, we have got this whole system that we have to support out there and if you say—if you wanted to deregulate the railroads and say, let us abandon any granger lines that we want to abandon, let us not be common carriers, let us concentrate only on the most profitable traffic, then I would pit the railroads in these high-volume long-distance movements against the coal slurry pipeline. But if you are not going to level the playing field that way, then I think we have got a problem.

The CHAIRMAN. Well, you know, it is incredible to me that anybody can even make the argument that coal slurry pipelines can be both a threat and more expensive than railroads. I mean, it simply does not add up and it is not consistent, I think, with the facts.

You heard Mr. Brolick testify that his pipeline is the lowest rate of——

Mr. BROLICK. One of the lowest cost western U.S. power plants as far as fuel supply.

The CHAIRMAN. We know that with ETSI the mere fact that they had the threat lowered their rates. I have got a letter which I put in the record from Middle South Utilities dated August 25, 1983, in which they said,

> I believe you assessed the situation accurately when you noted that the presence of a proposal from a credible slurry pipeline alternative enhanced the competitive bidding environment for this transportation. While there was additional competition between two originating rail carriers for the movement as far as Kansas City, the pipeline alternative provided the only competition to the delivering carrier from that point to the power plants.

And based on that, of course, they got a much lower rate.

We know that when they had the pipeline working in Ohio back in the late 1950s and early 1960s, that railroad rates came down from $3.32 regularly to $1.88, which happened to be below the rate of the pipeline and finally they closed the pipeline down because they had virtually cut in half the railroad rates. It just does not make sense that it is going to be more expensive and if it is more expensive it is not going to be built.

[The letter follows:]

Middle South Utilities, Inc.,
New Orleans, LA, August 25, 1983.

Hon. J. Bennett Johnston,
U.S. Senate, Washington, DC.

Dear Bennett: This is in response to your letter of August 3, 1983, regarding the recently contracted transportation arrangements for Arkansas Power & Light Company's coal movement to its generating plants in Arkansas.

I believe you assessed the situation accurately when you noted that the presence of a proposal from a credible slurry pipeline alternative enhanced the competitive bidding environment for this transportation. While there was additional competition between two originating rail carriers for the movement as far as Kansas City, the pipeline alternative provided the only competition to the delivering carrier from that point to the power plants.

As I have previously indicated, the Middle South System still supports the slurry pipeline concept. I want to thank you again for your continuing support for the development of coal pipelines and ask that you continue your support for the pending legislation which, hopefully, the Senate can favorably consider this fall. In my opinion, successful enactment of this legislation into law is necessary for consumers of electricity throughout the country to have the benefits of competitive pricing for transportation of coal.

In addition, your letter asked several specific questions regarding our recently signed transportation contracts. As you probably can appreciate, the railroads have insisted on stringent contract confidentiality provisions which would prevent the release of any "commercially sensitive" matters without the prior written consent of all parties to the contract. The railroads have indicated that they deem a response to your first two questions having to do with whether or not the contracts provide for minimum volume and asking if there exists some provision similar to "take-or-pay" that would assure a minimum level of revenues, to be "commercially sensitive" matters and, accordingly, the railroads refused permission for us to be responsive. Responses to the remaining five questions are detailed on the attachment hereto.

Bennett, I would point out that even if we were free to answer the first two questions, we do not believe the responses as to these specific contracts would be useful in furthering the cause of slurry pipeline eminent domain.

Perhaps, in the particular area of "take-or-pay", a somewhat different approach may be more appropriate and productive. It must be recognized that the terms and conditions of the AP&L contracts are not representative of what any given shipper can expect to negotiate, especially if he has no alternative; rather they represent what competition, particularly intermodal competition, may produce. Without pipeline competition the railroads have no incentive to negotiate a competitive contract and the utilities are stuck with the Interstate Commerce Commission tariffs. In evaluating any "take-or-pay" provisions that slurry pipelines might require, we must compare them to the published tariffs which can, particularly if present ICC philosophies prevail, only be expected to grow more onerous—both in terms of obligations on the shippers and cost to the electric consumers.

The captive utility coal shipper, absent real alternatives, cannot force the railroads to negotiate a favorable contract. Indeed, in all the prior years we have dealt with the Burlington Northern and Missouri Pacific, we could not bring them to the negotiating table with any meaningful proposals as long as they felt we had no alternatives. As a matter of fact, they have in the course of "negotiations" exhibited little reluctance to assess what we felt to be arbitrary increases whenever they considered they had the freedom to do so with impunity. For instance, the distance to the second AP&L plant which started up four years after the first one is some 7.5 percent shorter than to the first, yet when the railroads filed the tariff for this plant, they placed it at the same price as the tariff for the first plant, which we were already protesting before the ICC as being to high. Thus, the expected economies of scale of a shorter route and a doubling of the tariff tonnage moving over most of the route were denied to AP&L.

The published railroad tariffs under which is the great majority of captive coal moves do have strict minimum volumes, and in a number of these, there are several tariffs in which the lower volumes have higher prices. Virtually, in all of them, there is a provision for what is called a "fall-back" rate. This rate is usually on the order of 150 percent of the base rate and the shipper, if he ships reduced amounts, would pay the lesser of the cost of shipping the entire tariff specified volume at the tariff rates (even though he did not ship that much) or pay the "fall-back' rate for the tons he did ship. In any event, the results are the same; the railroads have established a minimum level of revenues under the existing tariffs which, as I stated before, are usually the only choice captive shippers have.

A typical tariff imposes performance obligations in the form of "take-or-pay" requirements on the shipper, but carries no reciprocal obligation of performance by the railroad.

Possibly, Bennett, there are other areas where we might be of assistance in helping you to continue your pursuit of the slurry pipleine eminent domain legislation in order that his mode of transportation can present itself as a credible competitor. If you wish, Mr. George E. White, Jr. can arrange for some of our personnel, who have been intimately involved in the railroad and pipeline situation over the years, to meet with you or your staff at your convenience. If you feel this would be desirable, just let us know.

Again, I wish to thank you for your support on this important legislation.

Very truly yours,

FLOYD.

U.S. SENATE,
Washington, DC, August 3, 1983.

Hon. FLOYD W. LEWIS,
Chairman/President, Middle South Utilities, Inc.
New Orleans, LA.

DEAR FLOYD: Thank you for your letter of the 25th in which you discussed Arkansas Power & Light's coal haulage contract with the Chicago and Northwestern Railroad. I understand your need to secure the cheapest form of transportation for your customers, and I am pleased that the prospective competition from the ETSI pipeline played role in reducing the transportation rates of the Chicago and Northwestern.

As you know, I continue to support the development of coal pipelines, and expect that my legislation to facilitate such development will be considered by the full Senate this fall. In order to fend off arguments which opponents of this legislation might make I would appreciate it if you could answer the following questions with regard to the AP&L contract:

(1) Do these contracts provide for the transportation of minimum volumes of coal annually?

(2) Do these contracts provide that, if less than the minimum volume of coal is transported, the rate paid for the remaining coal transportation shall increase? Is there some similar provision that assures the railroad a certain minimum of revenues?

(3) Do the contracts provide the utilities the right to renegotiate the contract if a cheaper form of transportation becomes available during the life-time of the contract?

(4) Are these contracts subject to prorationing? That is, can the contracted volumes of coal to be transported be reduced if later coal haulage demands of the railroad cannot be accommodated without such reductions?

(5) If the Chicago and Northwestern Railroad line is not developed from the Power River Basin, must the utility still make payments to the railroad?

(6) If the Chicago and Northwestern Railroad line into the Power River Basin cannot be built at the cost anticipated by the railroad, must the utility cover these increased costs either through a direct payment to the railroad or through increased rates under the terms of the contract?

(7) Does the law require that the ICC review and approve these contracts? Does the law require that the terms of the Contracts are to be made public?

I believe this information will prove most useful during consideration of S. 267, and I look forward to hearing from you.

With kindest personal regards, I am

Sincerely,

J. BENNETT JOHNSTON,
U.S. Senator.

ATTACHMENT TO LETTER

3. The contracts do not provide the utilities the right to renegotiate the contract if a cheaper form of transportation becomes available during the base period of the contract, nor is the railroad afforded any renegotiation rights.

4. These contracts are not subject to pro-rating.

5. If the Chicago and North Western Railroad line is not developed from the Power River Basin, the utility has no obligation to make any payments to the railroad.

6. If the Chicago and North Western Railroad line into the Power River Basin cannot be built at the cost anticipated by the railroad, the utility has no obligation to cover any increased cost through either a direct payment to the railroad or increased rates under the terms of the contract.

7. The law does require that the ICC review and approve these contracts. It is our understanding from the railroad that these contracts were filed with ICC on July 22, 1983. It is, further, our understanding of the law that ICC is required to retain the terms of the contracts confidentially.

Mr. DEMPSEY. No, no. I want to make a couple of points, Mr. Chairman, if I might. In the first place Black Mesa was built by the Southern Pacific Railroad, as you know. The reason is that in the terrain it was cheaper, more effective to build a coal slurry pipeline than it would have been to build a railroad. That makes absolutely perfectly good sense.

In terms of rates and expenses, you really—I come back to the point, you really have to draw a distinction. The fact that a rate quotation may be lower does not mean that the actual cost of transportation will be lower over the 20 to 25 year period of the take and pay contracts that coal slurry pipelines must engage in to get their financing. It just does not work out that way.

Now, as to competition, I do not disagree with you at all. But let me suggest this. A coal slurry pipeline is simply another means of transporting coal. It does not look like a railroad, it has got more bells and whistles. But that is all it is.

Now, if a group of entrepreneurs were to come to this Committee and say, now, we think that if we could concentrate on moving coal from the Powder River Basin, the Middle South—just big movements, that is all, do not bother us with any small movements out there or anything else—we do not want to carry anything else, that is what we want to do. We think we could afford effective competition to the Burlington Northern. We will just build it right alongside the Burlington Northern and we want the power of Federal eminent domain, I suggest to you with all respect that they would not get very much of a hearing and that really is all that is going on here.

The CHAIRMAN. One final statement here. You referred to an OTA report that says that you would lose jobs at a ratio of 6 to 1. I have a letter here from Paul S. Souder, who is now with ERC Government Assistance—a letter dated April 18, 1989.

He directed the economics-related part of the 1978 Office of Technology Assessment Study on coal slurry pipeline and he was also project director for the coal slurry pipeline study performed for the Commonwealth of Virginia. He says among other things, "Nowhere does the OTA study say that there is a ratio of six railroad jobs lost for each pipeline job gained. This figure may have been derived from data taken out of context and used improperly."

He goes on to say that "It can be seen from the above cases that the rail to pipeline employment ratio will vary from approximately 1 to 1, to 4.4 to 1, depending upon the factors involved," and he goes on to talk about the various factors, and indeed he had those various hypothetical cases. I would like to put that letter into the record.

[The letter follows:]

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ERC
Government
Systems

April 18, 1989

The Honorable J. Bennett Johnston
Chairman, Committee on Energy
& National Resources
364 Dirksen Senate Office Bldg.
U.S. Senate
Washington, DC 20510

Dear Senator Johnston:

I am pleased to respond to your request for clarifying information relative to the impact of a coal slurry pipeline on railroad employment.

I directed the economics-related part of the 1978 Office of Technology Assessment (OTA) study on coal slurry pipelines, and I also was Project Director for the coal slurry pipeline study performed for the Commonwealth of Virginia.

The numeric impact of coal slurry pipelines on railroad employment is dependent upon the specifics of any given coal movement. The important variables are:

(1) labor associated with coal ingathering (pipeline and rail)

(2) pipeline size (i.e., smaller diameter pipelines have higher head losses and require more pumping stations)

(3) number and size of rail crews required

Nowhere does the OTA study say there is a ratio of six railroad jobs lost for each pipeline job gained. This figure may have been derived from data taken out of context and used improperly.

A simplified way to evaluate the rail employment impact question is to examine the comparable labor costs between rail and pipeline systems. The average rates for rail and pipeline labor are similar; therefore, the labor cost ratio between rail and pipeline is a close approximation of the employment ratio. Below are three coal movement scenarios:

CASE A: OTA Study - 8 Million Ton/Year Coal Movement from Tennessee to Florida

1. Annual Rail Labor Cost = $11,232,000 (1977 dollars)
   (i.e., $71,948,000 x 15.6% = $11,232,000)
   (p. A-40)

2. Annual Pipeline Labor Cost = $5,540,000 (1977 dollars)
   (p. A-85)

3. Ratio of Annual Labor Cost (Rail/Pipeline) = 2.0
   Ratio of Employment

CASEB: OTA Study - 35 Million Ton/Year Coal Movement from Wyoming to Texas

1. Annual Rail Labor Cost = $48,529,000 (1977 dollars)
   (i.e., $311,085,000 x 15.6% = $40,529,000)
   (pp. A-27 and A-30)

2. Annual Pipeline Labor Cost = $11,050,000 (1977 dollars)
   (p. A-72)

3. Ratio of Annual labor Cost (Rail/Pipeline) = 4.4
   Ratio of Employment

CASE C: Virginia Study - 15 Million Ton/Year Grundy to Hampton Roads
(p. I-10)

1. No Ingathering

   Pipeline = 180 primary employees
   Rail = 408 primary employees

   Employment Ratio (Rail/Pipeline) = 2.3

2. With Ingathering

   Pipeline = 481 primary employees
   Rail = 529 primary employees

   Employment Ratio (Rail/Pipeline) = 1.1

It can be seen from the above cases that the rail to pipeline employment ratio will vary from approximately 1 to 1, to 4.4 to 1, depending upon the factors involved. In particular, the 4.4 to 1 employment ratio results from a large diameter pipeline case with few pumping stations and a very low coal ingathering requirement. Lower ratios in the area of 2 or 3 to 1 are found for smaller diameter pipelines with a greater number of pumping stations. Finally, where very labor intensive coal pipeline ingathering is found, the ratio could drop as low as 1 to 1 (refer to Case C-2 above).

I would be happy to discuss this further if additional questions arise (703-246-0505).

Very truly yours,

Paul S. Souder
Manager, Operations
and Economic Analysis

PSS/kgm

The CHAIRMAN. I can only say, if coal slurry pipelines were that efficient then they are certainly going to be lower cost in the long run.

Mr. DEMPSEY. Well, Mr. Chairman, at the hearing in the House, that quotation was read to me. I went back and looked at pages 77 and 78 of the OTA report and I have forgotten the gentleman's name, but either he is just plain wrong or I need a course in remedial reading and remedial arithmetic and I will supply with your permission the Committee with an analysis of the data and they are very plain.

The CHAIRMAN. We would welcome that analysis.

Mr. DEMPSEY. Thank you, Mr. Chairman.

[The information referred to follows:]

(9)

William H. Dempsey
President

ASSOCIATION
OF AMERICAN
RAILROADS

April 28, 1989

The Honorable J. Bennett Johnston
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

Dear Senator ~~Johnston~~ Bennett:

It was a pleasure to once again be afforded the opportunity to testify before your Committee on the reasons why passage of eminent domain legislation for coal slurry pipelines would be contrary to the public interest. At the hearing, two questions were raised which I stated would be answered in writing for the record. These questions and my responses are as follows.

The first question concerned the impact coal slurry pipelines would have on employment. The AAR testified that the 1978 report by the Office of Technology Assessment on coal slurry pipelines found that for every permanent slurry pipeline job created, six permanent railroad jobs would be lost. You asked how we arrived at the six-to-one ratio, stating that a former OTA employee asserted that OTA never came up with such a ratio. In a footnote in our testimony (footnote 9, pages 7 and 8), we explain the calculation of that ratio as follows.

> OTA stated the pipeline routes studied would result in pipeline employment of between 300 and 500 for each route, or 1500 to 2500 for the five routes OTA studied. According to OTA, if the pipelines studied were constructed, in the year 2000 lost railroad employment would total 15,943. Thus, the ratio would be 6.4 railroad jobs lost for every permanent slurry job created if the highest employment figure for pipelines, 2500, is used.

Thus, the ratio of six-to-one results from a simple arithmetic calculation using OTA's data on the permanent jobs associated with the transportation of coal by railroad and by pipeline.

50 F Street, N.W., Washington, D.C. 20001 (202) 639-2402

We understand that your question on the ratio stems from the attached letter you received from a former OTA contractor, Paul S. Souder, questioning the ratio. Mr. Souder states that "the rail to pipeline employment ratio will vary from approximately 1 to 1, to 4.4 to 1." Mr. Souder's calculations, however, are not supported by the OTA data he cites.

To begin with, instead of using the employment data set forth in the OTA report, as we did, Mr. Souder purports to examine the labor costs for railroads and pipelines, and then calculates a labor cost ratio. Mr. Souder assumes that the labor rates for railroads and pipelines are comparable and, therefore, that the ratio of railroad labor costs to pipeline labor costs would be the same as the ratio of railroad jobs to pipeline jobs.

It is inexplicable why Mr. Souder has attempted such an indirect method of calculating the jobs required to operate railroads and pipelines when actual employment figures are set forth in the OTA report. Moreover, when one looks at Mr. Souder's actual calculations, the mystery deepens.

Mr. Souder assumes that 15.6% of the total cost to operate a rail line is attributable to labor expenses. That figure is purportedly derived from Table 2-8 on page 38 of the Task II Report from OTA's report on coal slurry pipelines (Volume II, Part I). Sure enough, Table 2-8 states that 15.6% of the total cost to operate a railroad is attributable to "labor" expenses. Table 2-8 is based on the movement of coal from Gillette, Wyoming, to Dallas, Texas. Appendix D indicates how the figures in that table were derived. The appendix shows that the labor expenses category in Table 2-8 represents only the wages for the "crew" which operates the train. The "other operations and maintenance" category in Table 2-8 also has a significant labor component. The labor portion of this latter category is discussed on pages 64 - 68 of the Task II report. The report states that in 1971, labor expenses represented 50% of maintenance of way operating expenditures, 55% of maintenance of equipment operating expenditures, and 56% of non-maintenance operating expenditures. In the years after the baseline year of 1971, the portion of these expenditures attributable to labor expenses was forecasted to increase due to changes in real wages and productivity. We can, therefore, conservatively state that labor expenses account for at least 50% of the expenditures for the category "other operations and maintenance" in Table 2-8. Since Table 2-8 attributes 35.1 % of railroad costs to the "other operations and maintenance" category, an additional 17.5% of the total cost to operate a rail line must be added to the 15.6% of total costs used for train crew expenses to arrive at the percentage of costs attributable to labor. Table 2-8, then, shows that 33% of total railroad costs are attributable to labor expenses.

Reexamining the two OTA case studies cited by Mr. Souder (Case "C" is not an OTA case study and we have not examined it), we find that even using his convoluted method of calculating railroad-to-pipeline job ratios, it is reasonable to state that six permanent railroad jobs would be lost for every permanent slurry job gained. His Case A calculations should be:

annual rail labor cost = $71,948,000 X 33% = $23,742,840
annual pipeline labor cost = $ 5,540,000
rail to pipeline ratio = 4.3

The Case B calculations should be:

annual rail labor cost = $311,085,000 X 33% = $102,658,050
annual pipeline labor cost = $ 11,050,000
rail to pipeline ratio = 9.3

Cases A and B together:

annual rail labor cost = $383,033,000 X 33% = $126,400,890
annual pipeline labor cost = $ 16,590,000
rail to pipeline ratio = 7.6

The rail-to-pipeline employment ratio for Cases A and B is 7.6. Of course, we still prefer using OTA's employment figures rather than using this indirect method of comparing jobs associated with railroad transportation with jobs associated with coal slurry pipelines.

At the hearing Senator Rockefeller asked about the employment effects of a pipeline that would bring western coal to markets currently served by eastern coal mines. We have not been given information on what pipelines are currently being studied. If eminent domain legislation is passed, however, a pipeline may well be built that would bring western coal to eastern coal markets. Since pipeline contracts would be long term take or pay contracts, those eastern markets that contracted with such a pipeline operator would not be able to readily switch back to eastern coal, no matter what railroads or eastern coal mines did. The demand for eastern coal would fall, adversely affecting employment in eastern coal mines.

Once again, thank you for the opportunity to testify before your Committee. We would be pleased to supply any additional information you or other Committee members might have on this important issue.

Sincerely,

Bill

The CHAIRMAN. Senator McClure?

Senator McCLURE. Mr. Chairman, I do not mean to take very long because obviously this matter has been before this Committee for a long time and we have had the opportunity to ask most of the questions that could cross the mind of man. But I do think there are a couple of things I would like to at least reintroduce to the record. One is with respect to the water question and I note that you address that in your statement, Mr. Brolick.

Mr. BROLICK. Yes.

Senator McCLURE. I have forgotten the sulfur content of the Black Mesa coal.

Mr. BROLICK. It is under 1 percent.

Senator McCLURE. It is under 1 percent, very low sulfur, but is not sulfur separated before it is put in the slurry and in the pipeline?

Mr. BROLICK. No. There is no beneficiation.

Senator McCLURE. Is the slurry compound an acidic compound?

Mr. BROLICK. It is almost neutral.

Senator McCLURE. Almost neutral. You have indicated that the water at the other end is—70 percent of it is removed.

Mr. BROLICK. And used in the cooling water process.

Senator McCLURE. And used in the cooling water and then I assume it is disposed of as the cooling water is disposed of.

Mr. BROLICK. Through evaporation. There is no discharge from the plant.

Senator McCLURE. There is zero discharge except for evaporation?

Mr. BROLICK. That is correct.

Senator McCLURE. It is a totally closed circuit.

Mr. BROLICK. That is correct.

Senator McCLURE. Except for the additional water that is necessary to be added to the system?

Mr. BROLICK. That is right.

Senator McCLURE. On page 3 of your statement, if you would refer to the lower part of the page, in that paragraph that starts about the middle of the page, you are talking about aquifer depletion and you make the statement, according to reports the total aquifer depletion will be less than 1 percent, et cetera. What reports are you referring to?

Mr. BROLICK. That is the USGS report that is referred to in there.

Senator McCLURE. That is the USGS report?

Mr. BROLICK. 81-911, I believe. That was a 1981 report and there has been continuous monitoring of the situation and as a matter of fact there is updating of an EIS at this point by Peabody Coal and the facts seem to remain the same on depletion.

Senator McCLURE. You say that is a 1981 report?

Mr. BROLICK. Yes.

Senator McCLURE. That would be pretty speculative. Had it been in operation long enough that you are confident of the ultimate accuracy of that report?

Mr. BROLICK. It had been in operation for 11 years and since then updates have confirmed that information.

Senator **McClure**. Could you provide the Committee with reports and the updates that confirm that information?

Mr. **Brolick**. I will attempt to. That has been done primarily with Peabody Coal, but we should be able to obtain some of that, yes.

[The information referred to follows:]

Additional Information Requested by Senator McClure
from
H. J. Brolick of Williams Technologies, Inc.

Question: What is the volume of water that a coal slurry pipeline uses?

Response: Approximately 740 acre feet of water per million tons of coal is required. One acre foot is equal to 325,851 gallons. This equates to 240 gallons of water per ton of coal shipped.

Question: Provide verification that water reservoir depletion on the Navajo and Hopi Reservations have been in compliance with the U.S.G.S. Report 81-911, published in 1981.

Response: The publication entitled, "Geohydrology and Effects of Water Use in the Black Mesa Area, Navajo and Hopi Indian Reservations, Arizona: was prepared by the U.S. Geological Survey (USGS) in 1983. The report contains the results of mathematical modeling to determine probable future effects of pumping from the Navajo aquifer. The Navajo aquifer is the source of water for the Black Mesa production wells. A summary and the conclusions of the study are found on Pages 24 and 25. The USGS concluded that continued water use under their assumed pumping conditions would withdraw approximately 0.1 percent of the water stored in the Navajo aquifer. They further concluded that most of the water level declines near the mining complex would recover within ten years following the conclusion of pumping.

The publication entitled "Cumulative Hydrologic Impact Assessment of the Peabody Coal Company Black Mesa/Kayenta Mine" was prepared by the Office of Surface Mining Reclamation and enforcement (OSMRE) in January, 1988, as a portion of the analysis of a Peabody permit application for the Black Mesa mining activities. The USGS assisted OSMRE in analyzing the impacts of water usage from the Navajo aquifer. That analysis is described in Section 6.2. The results of Projection A (present mine plan and constant withdrawals for Indian communities) are that total withdrawal from storage would be 0.15 percent of the water in the N-aquifer and water levels would recover rapidly after mining.

Also a draft report has been prepared by the USGS to support the above identified OSMRE study. This document contains more detail on the various projections performed by the USGS. A recovery diagram may be found as Figure 19. Projection A most closely represents current operating plans and shows approximately 85 percent recovery in water levels beneath the Black Mesa leasehold (where drawdown is the greatest) within 15 years after pumpage.

All the above referenced documents are a part of the public record. We would be pleased to provide the documents on an expedited basis at your request.

Senator **McClure**. Mr. Dempsey, I assume that the railroads would still like to see 2(c) repealed?

Mr. **Dempsey**. Yes, that is right, Senator.

Senator **McClure**. Regardless of whether it is in this legislation or otherwise?

Mr. **Dempsey**. Yes.

Senator **McClure**. That is something I certainly agree with. I think you are entitled to have the opportunity to produce and market coal that is owned by railroads, whether it is in checkerboard patterns or otherwise and I see no reason for the artificial restraint that every Administration—the Linowes Commission and every analysis that I have seen—says is no longer justified by modern economics and so I would hope we will be able to accomplish that either as a part of this legislation or independently.

Mr. **Dempsey**. I would hope not as a part of this legislation.

Senator **McClure**. I understand that. Mr. Dempsey, I have one trouble in understanding the railroads' position. I have listened very carefully to the estimates of cost and I am no rate expert. I have never understood that arcane science, if indeed it is anything more than drinking tea and reading the tea leaves. It must be something more than that because the Interstate Commerce Commission has worked for years and made their reputations and their living telling the American public that they were important to us.

I remember a few years ago the railroads told us in Idaho that it was impossible to lower the shipment costs on grain moving from the wheatfields in Idaho to the ports in Portland and along the coast. At the same time they are telling us that you could not reduce the rates. You were at absolute rock bottom, breaking even if not losing money on that shipment.

You opposed the construction of slackwater navigation, which you contended was unfair competition because it was subsidized by the taxpayers even though, of course the railroads were subsidized when they were built. The slackwater navigation was brought to Lewiston, Idaho. We have a seaport in Idaho, 400 miles from the ocean.

The minute that went into operation the railroads lowered their cost of shipment of the grain that you could not lower before and there was only one change of circumstance and that was the introduction of competition.

I am more than slightly skeptical of the statements that are made that you simply cannot do it cheaper—and I recognize your operating revenues and costs are an amalgam of a whole lot of different things and coal shipment is a very important part of the total.

The same thing was true of grain shipment, but if we had not gotten the slackwater navigation the railroads would still be charging what they had been charging before, or more. We did get slackwater navigation and the cost of shipments went down to the benefit of the producers and the consumers. I do not know whether you would care to comment?

Mr. **Dempsey**. Yes, I would like to because I think—I understand your concern altogether, senator and it is a perfectly reasonable and valid point to make. Let me just try to do it this way and then if you think it is good public policy to drive rail rates down, all right, then it is.

We are dealing with—and I am going to use these figures: revenue to variable cost. Now, if a rate brings us a revenue to variable cost ratio of less than 100 percent, then we lose money and we do not carry that if we can help it. We do not. If it produces something over that ratio, let us say piggyback, which is low profit, but still it produces something on the average of about 115, 116 percent, you make more than your variable cost and therefore you make some contribution to your fixed costs, which are very heavy in our industry.

Now, we must make according to the Interstate Commerce Commission on average—on average—about 150 percent to make an adequate rate of return. We do not make that. We make about 135 percent. So we are short. Now, if you introduce competition or by any other means reduce our higher-rated commodities down and push, let us say coal—let us say coal, which I recall runs at about 146 or something like that—push that average down to 120, what you are doing is depriving the rail industry of essential revenues.

Now, that can be done. You can do it through the Interstate Commerce Commission, you can do it through legislation of this sort, and I suggest to you that the question is whether public policy, the good of all the shipping communities—shippers in the United States—would be served by introducing, in effect a supermarket kind of competition into the transportation area, the result of which would be unquestionably—I agree with the Chairman—to drive down rail rates. There is no question about that. But the question that I raise is, would that be in the long run best interests of the shipping community and of the community in general?

Senator McClure. What you are urging us to do is to weigh the public interest with respect to viability over the roads as against the public interest of cheaper transportation.

Mr. Dempsey. You have the public interest in reasonable rates on competition served through the Interstate Commerce Act. That was the whole purpose of the act.

The question now is whether you are willing to introduce into the transportation scheme a form of competition that is, I suggest to you with all deference, an unfair form of competition because it is—there is no way that the pipelines can avoid this.

They cannot build themselves any other way. They are not common carriers. They will carry the best kind of traffic that the railroads have.

The question is whether you decide it is so much in the public interest that the important and relatively unique power of federal eminent domain should be exercised to achieve that result. And the consequences, I suggest to you, are not happy ones.

Senator McClure. Thank you very much.

The Chairman. Senator Rockefeller I think was here first.

Senator Rockefeller. Thank you, Mr. Chairman. Let me, Bill Dempsey, give this question to you. I did it before.

We have heard it argued that slurry pipelines will bring western coal into the East further raising our already high mining and rail unemployment rates. Unemployment where I come from is a pretty big factor.

Slurry advocates say that such pipelines, however, will not be economic. Do you or do they, in your opinion, have studies of pipeline proposals for transporting western coal east?

Mr. **Dempsey**. Senator, I should be able to respond to that, but honestly I do not feel firm enough in the information I have. I wonder if I could respond to that in writing?

Senator **Rockefeller**. Fine, and then I will ask that to Mr. Brolick.

Mr. **Brolick**. I would like to respond to that.

We are in the business of looking into slurry pipeline projects. And the priority pipeline, slurry pipeline projects, if legislation were passed, would primarily open new markets to coal, would most likely be export projects, as a matter of fact, if it would concern western coal which there is almost no western coal now being exported because basically the inland transportation costs are too high. And so we have not been able to tap the Pacific Rim market at all. That would be a high priority for companies like us.

Eastern export, of course, that export pipeline was already shelved. There may be some specific power plant projects within the United States that would be economical.

To answer your question where they're moving western coal to the East would be a high priority, I do not think so. It may have been looked at and may be a possibility. It would not be a priority within industry.

I think the funds are being spent to look at clean coal technology and cleaning up eastern coals and removing the sulfur and the ash, and that is a more likely application of funds, beneficiation of eastern coals.

Senator **Rockefeller**. Could you, Mr. Brolick, then send me data on what you have just talked about and also with respect to exported coal. I would like to have the data that you base your statements on and for my own help. Would you be willing to supply that.

Mr. **Brolick**. Sure.

Senator **Rockefeller**. I would ask this of both of you. Critics of the bill argue that if slurry rates are lowered, shippers not in proximity to the pipeline will experience, in fact, a rate increase and, in fact that non-coal shippers, for example chemical products, may lose transportation altogether, abandonments, the economies that would result as a result of slurry pipelines.

Now, what is your response to that?

Mr. **Brolick**. Would you repeat? I did not get the full thrust of the question.

Senator **Rockefeller**. Critics of the bill say that if this bill goes through and if, in fact, slurry rates are, as you say, lower than rail rates, that shippers that are not close to the slurry pipelines will be in very serious trouble to say the least and, in fact, would either experience a rate increase or in the case of non-coal shipments, for example, chemical products, other bulk products, they would have no transportation whatsoever because railroads in response to slurry lines would have to go through an abandonment process thus isolating many shippers by not giving them an alternative.

Mr. **Brolick**. Well, I guess there remains that potential. There is the potential for coal slurry pipelines to gather coal from areas.

Each project has to be looked at specifically, so there is no general application either way. I don't think you could say in the case Black Mesa that the fact that moving Black Mesa coal that that had an impact on the movement of coal rates from any other location.

If you in fact moved Powder River coal as an export, would that raise the coal rail rates that continues to move inland to other U.S. power plants? It is almost a theoretical question.

Senator Rockefeller. It is not at all theoretical. It is theoretical in terms of the way you respond to it, because you are talking about isolated western areas. I am talking about—I do not represent Arizona. I represent West Virginia, and that is called the East. And there is not just coal that is depending upon railroads, but also other commodities. Chemicals are an enormous part of what is shipped on railroads.

So, my point is you cannot sort of build a lot of spurs of slurry as easily as you can on railroads.

So, if these non-coal shippers are not close to the slurry—and I mean by that chemicals, et cetera, you are going to—they are going to lose any form of transportation of their product, because you are talking about coal and chemicals and bulk products and other things all in the same mix, in the same area.

You do not build a slurry just—you know, a slurry is just for coal. But when you have a railroad, it can do a lot of other things, too. I think it would probably be pretty tough to ship chemical products through a slurry.

So, in other words, if the rails are not cheaper, the railroads are going to suffer, and when the railroads suffer, that means that they abandon lines. They have been doing that already.

Mr. Brolick. If, in fact, you were displacing existing coal volumes, I guess that could be the case. Chemicals are already being shipped through pipelines and refined products as such. So, there remains that type of competition, that viability already.

As I anticipate you are looking at more expansionist volumes than displacing existing volumes. So, I would think this would be a very isolated type of situation.

Senator Rockefeller. Mr. Dempsey, your view on that?

Mr. Dempsey. Well, if the bill works, the net result is inevitable. Now, if the bill does not work, there is not much point in passing it. But if it does work, as I indicated, the Office of Technology Assessment said back in 1979 that the railroads would lose two-thirds, roughly, of their net operating revenue if those five or six proposed slurry lines were built.

We cannot stand that. The reaction is obvious. What we would do would be to try to raise rates to the maximum extent possible, given market power, and so that will vary from rail to rail and commodity to commodity and then try to cut costs. And that means an acceleration of abandonments as you indicate for one thing and any other way we can do it which would hit labor as labor quit rightly is apprehensive about.

In my personal opinion, I think that's probably the principal sufferers here in terms of service would be the agricultural communities, because those are where we have our lowest density operations and where the probability of accelerated abandonments would be the greatest.

Senator **Rockefeller**. More so in the West than in the East?

Mr. **Dempsey**. You have to look at the granger states. Look at Kansas. That is where we have been trying to preserve the system in place by selling to regional railroads and short lines, and we are kind of blocked on that right now. But it would be that kind of a reaction that the rail industry would have to make.

The **Chairman**. Would the Senator yield?

Senator **Rockefeller**. Yes.

The **Chairman**. The EIA projects a coal production increase of 23.8 percent between 1989 and 2000. That is from 948 million tons to 1.171 billion tons, so—that is without coal slurry pipelines.

Senator **Rockefeller**. You are talking about national figures?

The **Chairman**. Yes.

Senator **Rockefeller**. And the figures for the East are basically flat. The figures for the West go up like that. So, again, it depends on which states we are talking about, what part of the country we are talking about.

We have no doubt that coal is going to boom in the West. In the East I think we are going to be lucky to hold ourselves flat or a very small increase, so I understand those figures. But it depends on how they are broken down, Mr. Chairman, with all due respect.

To both of you—suppose a slurry pipelines has rates that are lower than those of a railroad, again, and the pipeline drives the railroad out of a given market. What protection do the shippers that are now captive to the pipeline as a result of this have from monopoly rates?

And is it not true that the bill is vague about FERC's responsibility? And I anticipate your question about the ICC, your point about the ICC. Would you answer that, Mr. Brolick?

Mr. **Brolick**. Well, as in the case of Black Mesa, there is a long-term contract that establishes and controls the rates throughout the life of the contract.

Senator **Rockefeller**. What happens when a long-term contract ends?

Mr. **Brolick**. There will have to be a renegotiation of those rates.

Senator **Rockefeller**. And there would not be a different circumstance?

Mr. **Brolick**. That would, and we are because of the contract, we are not now controlled by the ICC, but it may be another application where it would be involved at the end of our existing contract.

Senator **Rockefeller**. Mr. Dempsey.

Mr. **Dempsey**. I think it is vague and I guess I have not focused very much on the way in which shippers who left the railroads and went to the pipelines would be protected, but I think you are quite right. It is an ambiguity.

I suppose what the answer is, you enter into a take-or-pay 25-year contract, and there you are. Now, you cannot do anything about that rate during that period of time. You may think you are protected, but maybe you are not.

As in the case of, for example, of the Ohio pipeline that the Chairman mentioned, if there had been a 25-year take-or-pay contract there, the shipper would have been stuck even though the rails came down with their rates.

Senator **Rockefeller**. My final question, Mr. Chairman, is one for Bill Dempsey.

As you know, the recent RCAF decision in the Interstate Commerce Commission will exert a significant downward pressure on rail rates. RCAF was a major issue in this debate over Interstate Commerce Commission reform.

Another issue in the debate has been the burdens, especially for small shippers, of proving stand-alone costs in a case alleging the new rail rate was excessive. And you and I both understand that.

Would you be willing to support at the ICC a simplified formula as a surrogate for proving stand-alone cost?

Mr. **Dempsey**. Yes, and as I expect you know, Senator, we are trying to work out an agreement with the National Coal Association on that very point.

I would say only that, yes, we do support that. We indeed have proposed an actual formula which we are working on now with the coal association to see if we cannot agree on it.

The principles would be that it should replicate as closely as possible the results of the stand-alone cost theory, and that is not an easy thing as a technical matter to work out. But I think we are pretty much in accord on that. So, we are working toward that goal, and we appreciate the problem.

Senator **Rockefeller**. Thank you, Mr. Dempsey. Thank you, Mr. Chairman.

The **Chairman**. Senator Burns.

Senator **Burns**. Thank you, Mr. Chairman. Just a couple of questions.

Is that aquifer down in—what is it—Arizona?

Mr. **Brolick**. Yes.

Senator **Burns**. Is that regarded as part of the Ogalala aquifer?

Mr. **Brolick**. I believe so. I am not certain on the name of the aquifer.

Senator **Burns**. I would be interested in the monitoring results.

I have a question for Mr. Dempsey. We hear about this and I think I watched grain move out of Montana quite a while. We have always felt like we were an island up there because I expect you know the history on that.

We moved corn from Omaha to Portland cheaper than we can move wheat from Montana to Portland. And then, we finally got around that. We had to ship to North Dakota first and then ship it back. That does not make a lot of sense, but it worked.

In a sense competition comes into this thing, and we do know that those rates do break down, and we know that coal is a big part of that.

Do you feel that this is—that this legislation is passed and if a pipeline were built, would you in your estimate—are we taking a serious step into really damaging our transportation infrastructure in this country?

Mr. **Dempsey**. That is our judgment. And I will refer again to the OTA estimates, which are the best available.

But if we are talking about depriving the rail industry of two-thirds of a net revenue, that would have a devastating effect on the transportation infrastructure or anything like or anything remotely approaching that.

Senator **Burns**. I have a question for Mr. Brolick.

You say when that coal and that water moves down, there it is 50:50 by weight. How does that compare on a volume basis? Do you know? It is kind of like asking a question what does a pound of lead weigh compared to a pound of feathers.

Mr. **Brolick**. I would like to submit that in writing, if we can.

Senator **Burns**. I would be interested in that because we have been in a drought situation in Montana. Of course, we are talking about the Powder River basin up there, and we are talking about Yellowstone River water and we are also talking about wells and this type of thing.

But I am wondering if we get into a situation—and I am speaking from the standpoint of agriculture—if we get into a stream flow thing like we had in the Yellowstone River and the Powder and the Ton the last two years and there is just no water to move, who has rights to that water, agriculture or coal?

And I have a problem dealing with that because we cannot eat coal.

Mr. **Dempsey**. Senator, I might just by way of illustration say that according to our information, if you had a 25,000 ton pipeline, that the quantity of water needed in a year would be the entire flow of the Potomac system for a week. Just to give you some order of magnitude, it's a ton per ton. That is what it comes to.

Mr. **Serkin**. The legislation makes it very clear that the primacy over state water rights is passed to the state, and it actually gives the states more rights than it apparently has over its water because the state, even though the water will be flowing in interstate commerce, could put—it can prohibit the sale of water to a coal slurry pipeline or put any terms or conditions on that contract such as if you have a drought condition, you could turn off the tap, even though it is flowing interstate.

Let me also add that ETSI pipeline that was mentioned before that would have moved about 25 million tons of coal, which is a very large pipeline, that would have used 20,000 acre feet of water a year for that pipeline which would have been taken from the Oahe reservoir in South Dakota, and that is less than 10 percent of the amount of water that evaporates yearly from that reservoir.

So, where water is a very sensitive and serious issue, it needs to be looked in relative terms. And also, what has not been brought out in these hearings yet is the new technology of slurry fuels which would use—they are 70 percent coal, 29 percent water mixture, and you would cut your water use in half. And those fuels could be direct fired in the boiler without water.

Senator **Burns**. Thank you very much. I have no further questions, Mr. Chairman.

Senator **Conrad**. Thank you, Senator Burns.

I would like to ask Mr. Brolick if he knew what heavy metals and other carcinogens are included, are locked in the coal which is being transported?

Are you aware of the presence of arsenic, cadmium, or other heavy metals that are known carcinogens?

Mr. **Brolick**. I think that is entirely coal-dependent. Of course, it would depend on what the ash constituents are.

So, if the question is do some of these carcinogens eventually end up in the water—and we have not experienced any type of a problem like that in our tests and do not anticipate a problem since we are not adding heat or anything to cause a reaction.

Senator **Conrad**. There is an eerie sound—that to me. I remember hearing testimony from the oil companies that we did not anticipate a problem with the shipping of oil from Alaska.

Let me just say that the coal in my state, as I recall, has six or eight known carcinogens locked in that coal, and you move it through a slurry, and you testified this morning that some 10 million pounds have leaked, and yet there is no environmental damage. I really wonder if that is an accurate statement, and I really wonder if you are slurrying coal in my part of the country and you had 10 million pounds spill, whether or not given the composition of that coal you would not have a very serious environmental problem.

What is your reaction to that?

Mr. **Brolick**. Well, I think it is the environmental organizations, the EPA, and the Arizona state organizations have run the tests on the material, and they have given us the answers as far as being nontoxic and nonhazardous.

Again, I might suggest there is much more in the way of coal escaping from rail cars on a daily basis around the United States than we could ever imagine escaping from coal slurry pipelines.

Just given our numbers, we would use roughly a half a percent, which I understand the escape from rail cars varies between a half a percent and 3 percent. It seems like it would be a much larger problem than currently could be anticipated with slurry pipelines.

Senator **Conrad**. Let me say to you there is a difference between coal that escapes from a rail car and coal that is in a fluid mixture moving through a pipeline.

The report of the status of issues and impacts of coal slurry pipelines on agriculture and water which was issued by Colorado State University indicates that water in the slurry can leach a variety of chemicals from the coal including sulfa, hydrocarbons and in some cases heavy metals. Heavy metals are the carcinogens that I was referring to that I know are locked in the coal that comes from my state.

If you lose a chunk of coal, that is not a problem. But if you are moving it in a fluidized situation and you have leaching as this report indicates that you can have, and there is a spill, that would strike me as presenting a very real and present environmental hazard.

Mr. **Brolick**. I suggest that all the coal moved in the rail cars is stored in piles that are subject to rain and leaching. So, all the coal moved by rail cars is subject to that type of leaching and contamination of ground water.

Of course, we do not anticipate any leaks on pipelines, so basically, none of it would be exposed to that type of leaching.

Senator **Conrad**. Well, I know we do not anticipate, but that is exactly the problem we have around here. We do not anticipate things that, in fact, happen. And you had indicated that, in fact, we have had leakage.

Again, I would remind you of what we were told in Alaska. We were not going to have a spill. We did not anticipate it. We were told that a spill had a very low probability, and yet it happened.

And I venture to say, we will have leaks. I think it is without much question we will have leaks.

Mr. Dempsey, if I might just turn to you for a moment. We had the discussion this morning about competition lowering prices. Certainly that is true where you have the commodities directly affected by the competition. But what about the other commodities? For example, in my part of the country, we are obviously very interested in grain.

If you have railroads hauling coal and grain, they lose part of the load to a slurry pipeline. What is the effect, from your perspective, on grain rates?

Mr. DEMPSEY. I do not think there is any question about it. As I say, we have had this experience in the 1970s, when, for a variety of reasons, the railroads encountered, many of them, financial difficulty.

The first thing you do—well, you do two things. First, is you try to raise rates to the maximum extent you can, where you have market power to do it.

Now, in piggyback, you do not have market power to do it, but in many cases, with respect to the shipment of grain, you do. So, you do that, and then you try to cut costs.

So, you reduce employment, you abandon lines, everything else that goes along with the reduction of your plant, to make the effort to get the system back to a high-density system.

Senator CONRAD. And so, just so we close the loop for the purpose of the record, when you say you do not think there is any question, I assume that you mean by that, that rates for grain would—there would be pressure, upward pressure on rates for grain?

Mr. DEMPSEY. Yes. And I may say that the Chairman noted that our financial condition is better than it had been, which is true, and it is because of that that grain rates, over the past eight years, have gone down. In absolute terms, I do not have the figure. It was about 40 percent. They have gone up some now, so that the agricultural community has benefited. And that has been, of course, because of the economic pressure on the producers of grain, that they have been experiencing in the marketplace.

The rail industry has been able to help them, and help ourselves. But, without that kind of flexibility, we will all be in trouble, in my judgment.

Senator CONRAD. For purposes of the record, I would like to enter into the record a concurrent resolution from the North Dakota State Legislature which concludes that the 51st Legislative Assembly urges the Congress of the United States not to approve legislation authorizing the use of eminent domain to acquire property for coal-slurry pipelines.

[The material referred to follows:]

Fifty-first Legislative Assembly, State of North Dakota, begun and held at the Capitol in the City of Bismarck, on Wednesday, the fourth day of January, one thousand nine hundred and eighty-nine

SENATE CONCURRENT RESOLUTION NO. 4061
(Senators Schoenwald, Krauter, Waldera)
(Representatives Nelson, Haugland)
(Approved by the Committee on Delayed Bills)

A concurrent resolution urging Congress not to approve legislation authorizing the use of eminent domain to acquire property for coal slurry pipelines.

WHEREAS, North Dakota's water is a precious natural resource that is necessary for agricultural, recreational, and industrial beneficial uses; and

WHEREAS, the Missouri River and Lake Sakakawea are seriously depleted as a result of recent drought conditions; and

WHEREAS, North Dakota water rights may be preempted by federal legislation pending before Congress which would authorize the use of North Dakota water to transport coal by slurry pipeline; and

WHEREAS, this proposed federal legislation would grant coal slurry pipeline consortiums the right of eminent domain to acquire property for the transportation of North Dakota coal and lignite, using North Dakota water, to distant utilities; and

WHEREAS, unit coal trains that currently transport vast quantities of coal in the upper midwest would be eliminated, causing the loss of North Dakota railroad jobs;

NOW, THEREFORE, BE IT RESOLVED BY THE SENATE OF NORTH DAKOTA, THE HOUSE OF REPRESENTATIVES CONCURRING THEREIN:

That the Fifty-first Legislative Assembly urges the Congress of the United States not to approve legislation authorizing the use of eminent domain to acquire property for coal slurry pipelines; and

BE IT FURTHER RESOLVED, that copies of this resolution be forwarded by the Secretary of State to the Secretary of the Department of Transportation, the Secretary of the Department of the Interior, the Secretary of the Department of Agriculture, the chairmen of the appropriate committees of the United States Congress, and to each member of the North Dakota Congressional Delegation.

Lloyd Omdahl
President of the Senate

William E. Kretschmar
Speaker of the House

Secretary of the Senate

Roy Gilbreath
Chief Clerk of the House

Senator CONRAD. My state is one that would be directly affected. Not only are we a large coal state—obviously, we are a major agricultural state, and also a state with very significant water resources.

And for those of us who have just gone through the most severe drought in 50 years, the thought that some substantial part of that water might be used for coal slurry, when alternative means are available, strikes us as one that we should only proceed with, with great caution.

Let me indicate that we have another panel to hear from, and in the interest of time, we will now move to that panel.

I want to thank all of you for participating this morning. You have been excellent witnesses, and the Committee very much appreciates your assistance.

Mr. DEMPSEY. Thank you, Mr. Chairman.

I wonder if I could ask for permission to have included in the record, a pamphlet entitled, Railroad Coal Rates in the Competitive Market Place.

Senator CONRAD. Without objection, that will be entered into the record.

[The material referred to follows:]

RAILROAD COAL RATES IN THE COMPETITIVE MARKETPLACE

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COAL RATE INDEX

YEAR	CURRENT DOLLARS	CONSTANT DOLLARS
1981	100.0	100.0
1982	108.9	103.9
1983	110.6	101.9
1984	111.2	98.9
1985	109.0	98.3
1986	106.3	94.4
1987	107.6	91.7
1988	110.6	90.0

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Economics and Finance Department
Association of American Railroads
February 1989

SMALL INCREASE IN COAL RATES

During 1988, the price of hauling coal by rail rose by 2.8 percent, but fell 1.9 percent in "real" (constant dollar) terms, according to the annual rate survey of the nation's largest coal hauling railroads undertaken by the Association of American Railroads (AAR). These modest changes in 1988, along with declines and limited increases in coal rates during previous years, are a reflection of both the competitiveness in the transportation marketplace and the increased efficiencies realized by the railroad industry since passage of the Staggers Rail Act. In fact, over the past seven years,[1] as shown below, railroad coal rates have increased by only 10.6 percent, equating to 1.4 percent on an annual basis. Furthermore, in "real" (deflated) terms, railroad coal rates have declined in every year since 1982 and have fallen by 10.0 percent over the past seven years.

Railroad Coal Rate Index (1981 = 100)

Year	Current Dollars	Deflated Dollars
1981	100.0	100.0
1982	108.9	103.9
1983	110.6	101.9
1984	111.2	98.9
1985	109.0	98.3
1986	106.3	94.4
1987	107.6	91.7
1988	110.6	90.0

The minimal increases and, in some years, declines in current dollar railroad coal rates have been caused, in part, by the increasing number of contract rates between railroads and shippers. More than 79,000 contracts involving all rail commodities and services have been signed as of December 1988, of which about 4,200 are coal related. It is estimated that over 62 percent of railroad coal tonnage is transported under contract provisions.

There has been a considerable difference between the change in coal rates as measured by the AAR index and

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1/ The Staggers Act was passed on October 1, 1980, but rate provisions were not immediately implemented. The Rail Cost Adjustment Factor was activated on June 5, 1981 and contract rates in that year were almost non-existent. Furthermore, significant railroad rate actions implemented in 1981 were a result of pre-Staggers proceedings.

that reflected in the index produced by the U.S. Department of Labor's Bureau of Labor Statistics (BLS). The BLS Coal Rate Index shows a greater increase in rates than the AAR index, and differs in both the magnitude and direction of change from one year to the next, particularly since 1984. However, the BLS index is based on a small sample size (less than 87 rate quotations compared with the 345 for the AAR) and it fails to fully account for the effect of contract ratemaking.

SAMPLE SELECTION

The study of post-Staggers Act coal rates is based on a scientifically chosen sample of coal movements of the four largest coal-hauling railroad systems which transport almost 86 percent of all the coal moved by rail in the U.S. The following chart represents the coal tonnage originated by each of the four participating railroad systems in 1987:

Railroad	Tons of Coal Originated	Percent of Total Class I Railroads
CSX	182,856,895	34.9%
BN	123,640,177	23.6
NS	107,408,185	20.5
CR	35,400,246	6.8
Sample Railroads	449,305,503	85.9%
TOTAL ALL CLASS I RAILROADS	523,254,097	100.0%

Each carrier followed the specified sampling procedure detailed below to identify specific origin-destination (O-D) pairs between which coal is transported. Rather than use a simple random selection technique, the O-D pairs were chosen to maximize the tonnage represented. Using 1983 annual originated coal tonnage, each railroad was asked to identify the O-D pairs which accounted for the top 80 percent of their traffic by tonnage. The sample was augmented where necessary to ensure that no market segments were systematically excluded from the sample due to volume or other factors.

Since 1983 was used as the traffic data base for the rate index, the four railroad systems supplying the data were asked to verify that traffic was indeed shipped between the selected O-D pairs in the ensuing years for which rates were being reported. In the event that traffic was not transported between a designated O-D pair in the relevant year, it was eliminated from the sample. This verification process ensured that traffic was actually being shipped during the periods for which rates would be ascertained and resulted in the establishment of an O-D pair sample accounting for 60 percent of all coal traffic originated by the study carriers. In total, 305 O-D pairs were designated by the sample selection methodology.

RATE QUOTATIONS

After the sample O-D pairs were selected and reviewed for consistency with the selection guidelines, the sample roads supplied specific rate information to the AAR. For the 1988 study, each railroad provided the applicable rates for each O-D pair as of October 1, 1988. The rate information provided to the AAR by the study carriers contains coded O-D designations to ensure its confidentiality. These proprietary data are released by the AAR only in an aggregate index format for the entire industry. The rates are for line-haul movement only (i.e., accessorial charges were excluded) for the selected origins on the reporting road to the final destination, whether on-line or off-line.

Rates were supplied for the "predominant" type of movement/rate as of the date for which the rates were being quoted. For instance, if traffic predominantly moved on a unit train between the O-D pairs in question, unit-train rates were quoted. If the predominance of traffic between an O-D pair was carried under a contract containing annual volume clauses, the applicable annual volume was estimated and the appropriate rate was furnished, with adjustments made for all expected refunds to shippers. Therefore, to the extent that coal traffic was moved differently than it was in 1981 and a subsequent year being measured (with regard to single car versus trainload versus unit train, or tariff versus contract rate), that factor is reflected in the rates and, therefore, in the index. The use of "predominant" rates permits the construction of an index which measures the most applicable cost to the shipper.

In several cases more than one rate structure applied to a given O-D pair. In those instances the carriers provided each rate and the applicable tonnage figures associated with the rates. The current tonnage relationships were used to apportion the total 1983 tonnage which had been reported for that O-D pair so that the index could be properly weighted. As a result of the existence of multiple rate structures in certain instances, 345 rate quotes were provided for the 305 O-D pairs.

The roads identified forwarded shipments for which they were unable to determine the actual through rate. For these shipments they provided the O-D pairs, the "waybilled" through rate, their portion of the through rate, the carrier to whom the shipment was passed, the estimated annual volume, and any other movement parameters affecting the rate. The divisional revenues were collected from each of the other participating carriers to construct the actual through rate.

INDEX CALCULATION

The coal rate index was calculated by using actual tonnage figures to weight the percent change in the rate for each O-D pair from October 1, 1980, to October 1 of each of the study years. The calculation process involved computing and calculating several intermediate indexes to arrive at the final index for coal. As outlined below, an index was calculated for each railroad system based on intermediate O-D pair indexes and then the national index was computed.

1. O-D pair weights were computed by dividing the 1983 tonnage for each O-D pair by the total 1983 tonnage for all O-D pairs supplied by that railroad.
2. O-D pair rate indexes were calculated for each O-D pair by dividing the October 1 rate for each study year by the October 1, 1980 rate and multiplying by one hundred. The O-D pair rate indexes were multiplied by the O-D pair weights to arrive at the weighted O-D pair indexes.
3. The O-D pair weighted indexes for each railroad system were summed to compute the railroad index.
4. Railroad weighting factors were determined for each railroad system by dividing that railroad's total 1983 originated coal tonnage by the total 1983 originated coal tonnage for all four surveyed railroad systems. The railroad indexes were multiplied by the railroad weights to compute the weighted railroad indexes.
5. The composite Coal Index was computed by summing the weighted railroad indexes.

Association of American Railroads
Economics and Finance Department
Washington, D.C.
February 1989

Mr. **Dempsey**. Thank you, Mr. Chairman.

Senator **Conrad**. Thank you very much.

Next, we will hear from John Kearney, Jr., a Senior Vice-President of Energy and Environmental Activities, the Edison Electric Institute.

David Senter, National Director of the American Agriculture movement, who is also testifying on behalf of the National Farmers Union, and the National Farmers Organization.

And Joseph Lema, the Vice-President for Transportation of the National Coal Association, who is also testifying on behalf of the American Mining Congress.

Welcome, all of you—we very much appreciate your patience, as we have gone through this hearing. As with all witnesses, we would urge you to summarize your written testimony. Your full written testimony will become part of the record of the Committee. And we will also hold the record open for a sufficient time to get additional questions answered in writing, if that becomes necessary.

Mr. Kearney, if I might call on you first, and again, indicate if you would summarize your testimony. If we try to allow about five minutes apiece for the witnesses to summarize their written testimony, and then we would go into a period for questioning.

I hope I have pronounced your name correctly.

Mr. **Kearney**. No, you did not. But, that is all right. [Laughter.]

Senator **Conrad**. Well, straighten me out.

STATEMENT OF JOHN J. KEARNEY, JR., SENIOR VICE PRESIDENT, ENERGY AND ENVIRONMENTAL ACTIVITIES, EDISON ELECTRIC INSTITUTE

Mr. **Kearney**. Mr. Conrad, my name is John J. Kearney, and I am a Senior Vice-President of the Edison Electric Institute, which, as you may know, is the Association of investor-owned electric utility companies, whose member companies generate and distribute about 75 percent of all the electricity in the United States. So, you can see this is something of vast interest to us.

And I am pleased to testify today on behalf of the Institute in support of S318, the Coal Distribution and Utilization Act of 1989.

We believe that the development of coal-slurry pipelines can provide the potential for much needed competition in the transportation of coal to electric utility power plants, and could provide substantial benefits for our national economy.

Coal-slurry pipelines can offer shippers in many areas of the country, an alternative, less expensive mode of coal transportation. Because coal transportation costs are generally paid for by electric utility customers, in our judgment, this is a consumer issue.

The EEI supports passage of appropriate legislation, such as S318, which allows the development of coal-slurry pipelines, by setting up a procedure for deciding water rights and eminent domain authority. And most importantly, allows the market to decide if a pipeline is economically feasible.

Coal, as I am sure you know, coming from your state, is a critical fuel for the electric utility industry. Electric utilities consume some 700 million tons of coal per year, and approximately 57 percent of the electricity generated in the United States each year is produced from coal. And coal is expected to continue to serve as an important source of fuel for the production of electricity.

Because of the bulk nature of coal, and the long distances over which it most often must travel to generating plants, transmission options are limited. Currently, rails are the predominant means of transportation for coal, and nearly two-thirds of utility coal is transported by rail for all, or part, of its journey to the power plants.

And the annual cost of transporting this coal is now running at approximately $5 billion. These costs, as I indicated, are generally passed on to our customers, and reflected in their rates.

In order to minimize cost to our customers, electric utilities need the flexibility to take advantage of competition among types of fuels, and among the various methods of transporting these fuels to power plants.

In conclusion, as I have stated, we believe that the development of coal slurry pipelines, can provide competition in coal transportation, and have the potential for reducing coal shipping rates.

And since these transportation costs are generally passed on to our consumers, they will benefit the general public.

Mr. Chairman, this concludes my statement, and I will be willing to, pleased to answer questions of you and Mr. McClure, or others. Thank you.

[The prepared statement of Mr. Kearney follows:]

STATEMENT
OF
JOHN J. KEARNEY, JR.
SENIOR VICE PRESIDENT
ENERGY AND ENVIRONMENTAL ACTIVITIES
EDISON ELECTRIC INSTITUTE

ON

S. 318, THE COAL DISTRIBUTION AND UTILIZATION ACT OF 1989

BEFORE THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
APRIL 20, 1989

Good morning, Mr. Chairman. My name is John J. Kearney, Jr., Senior Vice President, Energy and Environmental Activities, Edison Electric Institute (EEI). I am pleased to testify today on behalf of EEI in support of S. 318, the Coal Distribution and Utilization Act of 1989. EEI is the association of investor-owned electric utilities whose members generate and distribute approximately 75% of all the electricity in the United States.

EEI believes that the development of coal slurry pipelines can provide the potential for much needed competition in the transportation of coal to utility powerplants and could provide substantial benefits for our domestic economy. Coal slurry pipelines can offer shippers in many areas of the country an alternative, less expensive mode of coal transportation. Because coal transportation costs are generally paid by the customer, this is a consumer issue. EEI supports passage of appropriate legislation, such as S. 318, which allows the development of coal slurry pipelines by setting up a process for deciding water rights and eminent domain authority; and most importantly allows the market to decide if a pipeline is economically feasible.

Coal is a critical fuel for the electric utility industry. Electric utilities consume nearly 700 million tons of coal per year. Approximately 57 percent of the electricity generated in the United States each year is produced from coal. Coal is expected to continue to serve as an important source of electricity in the future. Thus, competition for the supply and delivery of coal is essential to promote cost-effective electricity generation.

Coal transportation alternatives at competitive rates could encourage increased use of domestic coal while discouraging the importation of foreign fuel. To maintain its market share, U.S. coal must have available to it the most cost-effective methods of both production and transportation.

Because of the bulk nature of coal and the long distances over which it must often travel to reach generating plants, transportation options are limited. Currently, railroads are the predominant means of transportation and, nearly two-thirds of utility coal is transported by rail for all or part of its journey to the powerplant. The annual cost of transporting this coal is now running approximately $5 billion. These costs are generally passed through to our customers and are reflected in the rates for electricity.

A 1985 Department of Energy (DOE) report entitled "Coal Slurry Pipelines: Impact on Coal Markets", which analyzed the operation of four hypothetical new pipelines under low, medium, and high economic growth assumptions concluded that coal users could realize savings of between $200 million and

$1 billion in 1995. These savings would be reflected in the prices consumers pay for electricity.

In order to minimize costs to our customers, electric utilities need the flexibility to take advantage of competition among types of fuels and among the various methods of transporting these fuels to powerplants.

Electric utilities have supported coal slurry pipeline development for over 30 years as a means of providing economic and efficient service to electric consumers. In 1949, Cleveland Electric Illuminating (now Centerior Energy Corporation) became concerned about the cost of rail coal delivery to the Eastlake Station. Studies by Consolidation Coal Company showed that a pipeline would be economic and, in August of 1954, pipeline construction was authorized by Consolidation Coal. In March of 1957, the 106 mile pipeline opened. Table 1 illustrates the response of rail rates for delivery of coal to the Eastlake Station following the opening of the pipeline. As you can see, competition from that pipeline significantly reduced rail rates.

Table 1

Comparative Freight Rates, Coal Slurry Pipeline and Railroad: 1957-1963

Date	Rate (per net ton)	
	Pipeline	Railroad
March, 1957	$2.47	$3.32
October, 1957	2.47	3.37
May, 1958	2.47	3.47
May, 1959	2.47	2.77
September, 1960	2.47	2.42
December, 1960	2.47	2.49
July, 1963	2.47	1.88

Eric H. Reichl, "Some Comments on Coal Pipelines," Energy Transportation Conference, St. Louis, November, 1963.

Another illustration of the efficiency and economics of coal slurry transportation is the Black Mesa Pipeline. In the 1960's, the Southern California Edison Company decided to build a coal-fired powerplant on a remote site adjacent to the Colorado River in Southern Nevada. The coal source selected was located in remote northeast Arizona, many miles from the nearest rail link. A railroad subsidiary built and operated the 273 mile Black Mesa Pipeline for many years before selling it because of corporate restructuring. Electric consumers in Arizona, California, and Nevada have benefited from the selection of the most effective and economic means of transportation.

The benefits of introducing competition into the area of coal transportation can be found in an analysis of the impact of the introduction of a second railroad into the Powder River Basin coal field, and area previously the exclusive domain of the Burlington Norther Railroad.

A May 19, 1987 report by the Bureau of Land Management of the Department of the Interior, "Case Study: Impact of Coal Transportation on Western Coal Development and the Federal Coal Program", concludes that:

- Transportation rates for coal shipments in the Powder River Basin prior to 1984 were higher than rates that would result from competition;

- Competition has led to substantial declines in rail rates in the southern Powder River Basin. Savings to consumers are estimated at over $160 million. Rate decreases are as high as $7 per ton;
- Direct origin rail competition is present in some other western coal-producing regions, but most mines are served by only one railroad.

In conclusion, EEI believes that the development of coal slurry pipelines can provide competition in coal transportation, thereby reducing shipping costs. Since transportation costs are generally passed through to our customers these savings would benefit consumers.

Mr. Chairman, this concludes my prepared statement. I would be pleased to answer any questions you or other members of the Committee may have.

Senator CONRAD. Thank you very much, Mr Kearney.

We will proceed with the other witnesses, and then have a chance for questions.

I want to acknowledge that my colleague, Senator McClure, the ranking member of the Committee has now joined us, and there is no one more knowledgeable on the issues before this Committee than Senator McClure.

Next, we will hear from Mr. Senter, representing the American Agriculture Movement.

STATEMENT OF DAVID SENTER, NATIONAL DIRECTOR, AMERICAN AGRICULTURE MOVEMENT, INC.

Mr. SENTER. Thank you, Mr. Chairman. I appreciate the opportunity to appear before this Committee today. I might also state that I am here to represent, not only the American Agriculture Movement, but the National Farmers Union, and National Farmers Organization.

All of our groups are strongly opposed to passage of S. 318. This happens to be one of those few issues where, across the board, there is unanimous opposition to this legislation by all the different farm groups, and commodity groups, and the rural community.

We believe that the pipelines are unnecessary, and would harm a major ag transportation network that is in place. We, in agriculture, also benefit from competition. We have rail service, we have trucks, and we also, at some locations, have barge opportunities to move grain.

We have watched as Rock Island and many other railroads have closed. They have abandoned lines, and left many of our agricultural producers, captive shippers to trucks, which has raised our cost of transportation substantially.

We see that if the railroads lose the opportunity to transport coal, that that would, in effect, lead to more abandonments, and higher freight rates for agriculture commodities.

We, also, are very concerned about the water resources. We watch as this year appears to be leading us into another drought. The stories from Iowa—water shortages.

We also remember the problems we had with barge traffic, because of low water levels.

And we do not want to be in a situation of seeing a fierce-fought battle over whether the air conditioners are running in Houston, Texas, or whether we have water for agricultural uses in our major agriculture states.

We see this, that once the water is turned on, into these pipelines, it will almost be impossible to ever turn that spigot off, because the system would not still be in place to move coal by other routes.

We are concerned about the environmental risk.

Senator Conrad, you mentioned the Alaska spill. I think that is on all of our minds. And we see this as a real threat to the environment. You might want to see a picture of one of those minor spills from the Black Mesa pipeline. And I think if this was in the middle of my farm, somewhere in the heartland, this would not be a minor environmental impact.

We also know that the Black Mesa, the water ends up in pools, and it evaporates. I really do not think the water would evaporate in South Texas, or Arkansas, or Louisiana, such as it does in Arizona.

So, we see a real problem, and are not convinced that the water could ever be used for agriculture, or any other purposes, and find it very difficult to see how it would be disposed of, particularly talking about export coal. Then, you would have the water close to Chesapeake Bay. You would have it close to the Gulf, and we have a lot of producers involved in aquaculture, and others. So, we are concerned about what will happen to the water, and be the impact.

And, of course, very important to us is the eminent domain question. Property rights are very important to those of us in agriculture. We are not concerned with property rights of the railroads. I want to be very clear on that. We have not been friends of the railroads over the years. We are concerned with land owners' property rights.

And so, when government starts looking to granting federal eminent domain, for private profit-making companies, we have great concern. If this is, in fact, a business venture that is viable, we believe that, just as the Black Mesa was built, that private interests should come and negotiate with land owners for right of way, instead of the federal government stepping in and granting this eminent domain.

Thank you, Mr. Chairman, for the opportunity to appear.

[The prepared statement of Mr. Senter follows:]

American Agriculture Movement, Inc.
America Needs Parity!

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Testimony of
Mr. David Senter
National Director

American Agriculture Movement, Inc.

before the
Committee on Energy and Natural Resources
Chairman J. Bennett Johnston

April 20,1989

I thank the Chairman and members of this committee for the opportunity to appear here today to present the views of the American Agriculture Movement, Inc. concerning S. 318, the Coal Pipeline Act of 1989. I am pleased to advise the committee that the views I will be expressing today are also shared by the National Farmers Union and the National Farmers Organization. Concerning this matter, these farm groups are all in agreement. AAM, NFU and NFO all strongly opposes S. 318 and urge the members of this committee to vote against this proposal.

We oppose S. 318 for a number of reasons:

(1) coal slurry pipelines are unnecessary, and would financially damage our national railway transportation system, resulting in higher rates and deterioration of service, as well as a significant loss of jobs;

(2) coal slurry pipelines would waste vast quantities of valuable water resources already in short supply, to the detriment of agriculture and other vital industries;

(3) coal slurry pipelines would pose unreasonable and unnecessary risks of environmental damage to our land and groundwater supplies; and,

(4) S. 318 would grant the federal power of eminent domain to private entities, allowing them to force farmers to give-up valuable acreage being used for the production of food and fiber.

PIPELINES UNNECESSARY; WOULD HARM RAILROADS

This pipeline proposal would be an enormously expensive project which simply is not needed. The railway transportation system is more than adequate to meet any foreseeable increase in demand for coal transportation, and there are regulations in place to assure coal shippers fair treatment.

Were the railroads to lose the revenue – estimated at $700 million annually – projected as a result of the construction of coal slurry pipelines, the impact on the industry would be dramatic. Transportation rates for the remaining users would rise, quality of service would inevitably decline, and jobs would be lost.

WOULD DIVERT SCARCE WATER RESOURCES

The impact on our scarce water resources is especially frightening. One ton of water would be required to move one ton of coal, and a single pipeline would require up to 6 billion gallons of water each year – enough water to meet the needs of a city with 65,000 people. With the experience of the 1988 drought still fresh in our minds, and the indication that another drought appears likely in 1989, diverting billions of tons of water from agricultural uses in our rural areas to coal slurry pipelines is truly shortsighted. There are other reasonable options for moving coal; without adequate water, we cannot produce food for our people.

SERIOUS ENVIRONMENTAL RISKS

Similarly, the very real threat to the environment cannot be dismissed. What will eventually happen to the enormous quantity of contaminated water required for the pipelines, and what impact will the spills and leaks have – and there surely will be accidents – on groundwater supplies, environmentally fragile land and productive acreage? Has anyone fully considered the adverse consequences of forfeiting thousands of acres of forests, grasslands and croplands to build these pipelines?

INAPPROPRIATE USE OF EMINENT DOMAIN

Finally, Congress should exercise its power of eminent domain to take private property only when there has been a convincing demonstration of an important and compelling public need. That case has not and cannot be made for coal slurry pipelines. As discussed earlier, the pipelines are not needed at all. They would enrich a few private interests at an enormous cost to the rest of society. Absent an overwhelming public need, private interests seeking to make a profit should negotiate with landowners for any right-of-way over that property. It is preposterous for these companies to suggest that they should be allowed to take our agricultural land through eminent domain to build an coal slurry transportation system that is not needed.

On behalf the American Agriculture Movement, Inc., the National Farmers Union and the National Farmers Organization, I urge the members of this committee to reject this ill-advised proposal.

Senator CONRAD. Thank you.

Next, we will hear from Mr. Joseph Lema, the Vice-President for Transportation of the National Coal Association. Welcome.

STATEMENT OF JOSEPH E. LEMA, VICE PRESIDENT FOR TRANSPORTATION, NATIONAL COAL ASSOCIATION

Mr. LEMA. Thank you.

Mr. Chairman, Senator McClure, the National Coal Association and the American Mining Congress appreciate this opportunity to express our views on what we think is a very important matter.

My name is Joseph E. Lema. I am Vice-President for Transportation of National Coal Association. I do appear on behalf of both NCA, and the American Mining Congress.

We would like to make our position quite clear. The position of the National Coal Association, and the American Mining Congress on S. 318. And that position is simple. We vigorously support the legislation.

I have heard earlier witnesses testify that they are either strongly supportive, or strongly opposed, so I use a different word. We vigorously support the bill for good and sufficient reasons, we believe.

I would like to summarize by bringing out four brief points. The first is that coal pipeline technology is proven to be successful. An earlier witness, who now owns and operates that Black Mesa pipeline, has shown that to be true.

The question came up earlier today on what are the comparative rates between coal pipelines and railroad coal transportation providers?

I would simply say that, while we have a feeling about that, the simple truth is that the Black Mesa pipeline, a currently operating pipeline that carries 5 million tons a year, works very successfully from a rate standpoint, because, quite frankly, there are no rate complaints brought. There could be; there are not. The carrier and the shipper are both very satisfied. It is competitive.

The second point is transportation competition does hold down coal rates. In the southern Powder River Basin, in the mid-1980s, railroad coal rates dropped 20–25 percent, typically, when new railroad competition was brought into the southern Powder River Basin.

My third point—coal production is increasing. The National Coal Association estimates or forecasts, I should say, that the 1985 level of 884 million tons per year, by the year 2000, will reach 1.11 billion tons per year. That leaves a lot of room for the acquisition of additional coal transportation services.

It is difficult for me to believe that a railroad, who presently hauls coal, would let that valuable coal traffic slip away from it. That rail carrier can compete, and does compete today, utilizing coal transportation contracts, and it will continue to do so.

It is really this new volume of coal tonnage that we are talking about. We believe that there is room for both the coal pipelines, and the railroads, as well as the barge lines to compete for that traffic.

Finally, I would underscore the notion that, not only is coal slurry technology proven, there are new clean coal technologies, and new coal-rich slurries that have been developed in the 1980s.

We think pipelines are a very valuable asset to capitalize on, in the exploitation of those technologies.

I have heard just recently, or twice this morning, about an unfortunate event recently in Alaska. Well, I would also remind the Committee, that we had unfortunate events in 1973, with the OPEC oil embargo. We had an unfortunate event in 1979, when OPEC raised its prices on imported oil. And an unfortunate event in the mid-1980s, when the Persian Gulf crisis occurred.

So, there have been a lot of unfortunate events. We think coal, American coal is ready to be utilized to a much higher degree in domestic and export markets. We can produce that coal. We can transport the coal. We just need to hold down coal's delivered price. S. 318 will help coal's competitiveness, both in American, domestic and export markets.

Thank you.

[The prepared statement of Mr. Lema follows:]

Statement of

Joseph E. Lema

Vice President for Transportation

National Coal Association

On Behalf of

National Coal Association

and

American Mining Congress

Before The

Committee on Energy and Natural Resources

United States Senate

On

S.318
The Coal Distribution and Utilization Act of 1989

Washington, D.C.
April 20, 1989

Mr. Chairman and members of the Committee, My name is Joseph E. Lema, vice president for transportation, National Coal Association.

I am appearing today on behalf of the National Coal Association and the American Mining Congress. These two organizations combined represent most of the major coal producers in the United States and the vast majority of total U.S. coal production.

NCA and AMC strongly support the enactment of legislation which will provide federal eminent domain authority to assist in acquiring rights-of-way needed for construction of interstate coal pipelines. We urge this committee to report favorably S.318, "The Coal Distribution and Utilization Act of 1989". This bill will grant eminent domain authority for coal pipelines for the same purposes as railroads, highways, oil and gas pipelines, and transmission lines were aided in their development.

Without eminent domain authority, it is truly doubtful that coal pipelines will ever be built due to the enormous difficulties associated with the acquisition of the rights-of-way across the distance which the pipelines would traverse.

I wish to call the committee's attention to four critical points which we in the coal industry believe reflect the importance of S.318.

- First, coal pipelines can be a strategic factor in the improvement of the energy security of the United States. Pipeline distribution of coal and coal-based fuels can significantly enhance the utilization of our abundant coal reserves, and in turn reduce our consumption of imported fuels. A major step toward energy independence can then be realized.

- Second, coal pipelines have the potential to increase the competitiveness of the U.S. in world markets by holding down the cost of coal transportation. Foreign coal buyers have stated publicly that the cost of domestic transportation is the single most important factor driving them away from U.S. coal. Making U.S. coal more competitive can result in a significant improvement in the U.S. trade deficit.

- Third, coal pipelines will facilitate progress in applications of clean coal technologies through efficient distribution of coal-rich mixtures of microfine coal blended with water and chemical additives. Such fuels can be directly combusted in utility and industrial facilities. Coal pipelines represent the most efficient known systems for distributing these coal-based fuels. The pipelines could stretch from a preparation plant located near the mine site to storage terminals and end users, much the same as petroleum and natural gas pipelines are used now to distribute those products.

- Fourth, coal pipelines represent proven technology for efficient coal transportation. The Black Mesa Pipeline in operation in Arizona today, carries approximately five million tons of coal annually. The pipeline stretches 273 miles from the mine to the electric utility powerplant which consumes the coal. Coal pipelines can, in some instances, constitute viable alternatives to rail transportation of coal.

The first of the four points just mentioned regarding the coal industry's reasons for supporting enactment of S.318 focuses on a well recognized national need for energy independence. U.S. coal is well positioned to contribute toward reaching that goal. It is estimated that there are about 488 billion tons of minable coal reserves in the U.S. Coal production has been in the 800 to 950 million ton range annually during the 1980's, and the mining capacity currently exists to produce more than one billion tons annually. Coal mine productivity measured in tons per person per day has increased by 56 percent from 1980 to 1986.

Abundant reserves, existing capacity for expansion, and improving productivity all demonstrate coal's ability to play a major role in this nation's attempt to limit its dependence on imported fuels. Such dependence on potentially unstable, costly fuel imports clearly threatens our national security. We can, and must eliminate that threat without further delay.

The energy crisis of 1973 created an urgency for such a program, but public interest in it waned quickly, largely due to an increased availability of petroleum and petroleum products at less inflated prices. In 1979, we again faced an energy crisis, but again the impetus for dealing with the problem diminished as that crisis faded. Now, in 1989, more than one and one-half decades after the energy crisis of 1973, we still have not made a commitment to an energy policy which produces energy security. Clearly, energy security means utilizing domestic sources of energy that are rational, available and proven.

One way to move toward a greater reliance upon U.S. produced fuels is to utilize to a much greater degree our abundant, secure reserves. S.318 which is now before this committee, would be one positive step toward such a decreased reliance on imported fuels.

The second point regarding S.318 is the valuable role the legislation will play in increasing the competitiveness of U.S. products in world markets. Inland transportation typically represents about one-third to one-half and sometimes more, of coal's delivered price. This is true whether delivery is to utility and industrial facilities or to port terminals for export to other countries. Coal pipelines, due to the transportation competition which they will inject into the marketplace, can be an effective force in holding down costs and lowering the delivered price of U.S. coal. The benefits of a reduced delivered price for U.S. coal are numerous and include: (a) increasing the U.S. share of world coal markets; (b) increasing the competitiveness of U.S. manufacturers through lower electricity costs in production; and (c) lowering electricity rates for consumers.

U.S. coal exports are currently facing intense competition from coal produced elsewhere, notably in traditional coal export countries such as Australia, Poland and South Africa. More recently, Colombia and China have become big players in the industry. Furthermore, Australia has now replaced the U.S. as the world's leading coal export nation.

Notwithstanding major expansion in terminal capacity for handling export coal, the previously mentioned mine productivity increase, and the accomplying 31 percent drop in average mine prices, we have not been able to increase coal exports over 1981 levels. The result, unfortunately, has been loss to the potential improvement in the U.S. balance of trade and reduced domestic activity in the coal export chain. Over a six-year period, railroad coal freight rates have drifted downward only 11 percent in spite of improvements in productivity of 50 percent in revenue ton-miles per employee-hour paid. Certainly, the railroads have not shown the same thrust toward competitiveness as demonstrated by coal suppliers. The disparity in performance in pricing of coal supply and transport in the face of significant gains in productivity experienced by both industries, is magnified by the fact that railroad productivity changes are for all railroad freight, whereas railroad coal freight is handled much more efficiently than other commodities. This apparent absence of railroad responsiveness to market conditions has hampered coal export initiatives.

In situations where coal pipelines can be constructed and operated profitably, S.318 will provide the incentive needed to force the railroads to compete.

This legislation has unique appeal. It does not create a new federal program. It does not call for government financing. What it does is simply eliminate the barriers which prevent coal pipelines from being built by private sector interests. It is hoped that construction of coal pipelines will enhance the competitiveness of coal transportation and thereby improve the competitiveness of U.S. coal itself in domestic and world markets. These pipelines promise to be contributors toward recovering lost market shares and gaining new markets. In order to recover any portion of those coal exports lost over the past six years, we must reduce inland transportation costs. We believe this objective can be attained by facilitating the construction of coal pipelines.

The third point which was mentioned in support of enacting S.318 is the fact that it will facilitate development and deployment of clean coal technologies. A program to demonstrate the use of clean coal technologies was recently initiated. Several new coal-based fuel technologies have been developed during this decade. Some of these technologies blend microfine coal with water and chemical additives, holding the coal in suspension and preserving the homogeneity of the mixture. Just as pipelines are utilized to distribute petroleum products and natural gas, with which coal must compete, coal pipelines will be exceptionally efficient means of distributing such coal-based fuels from preparation locations to storage and end user facilities.

These coal-based fuels have several unique advantages. They can be produced in the coal fields where coal is mined, thus reducing the need to transport raw or beneficiated coal in solid bulk state. These coal-based fuels are coal-rich compared with traditional slurry coal, containing up to 75 percent coal, and are directly combustible, eliminating any need for de-watering the slurry mixture at the end user's plant. The technology promises a coal-rich liquid fuel produced where coal is mined; transported at less cost; and consumed with reduced requirements for storage and waste disposal at utility and industrial plant locations. Further development of these fuels and technologies will only take place if the appropriate transportation mode is available. S.318 provides the means of developing that transportation mode; Coal pipelines.

The final point underlying NCA's and AMC's support of S.318 is the desirability of taking advantage of a proven technology to move large quantities of coal considerable distances in a safe and efficient manner. Over the years since the development of slurry technology for the transportation of coal, a number of pipeline projects have been proposed. The Cadiz Pipeline in Ohio delivered a coal slurry product to a Cleveland utility for a period of time, but that line has been mothballed for several years now and is no longer operated. The only operating coal pipeline in the U.S. at this time is the Black Mesa Pipeline in the state of Arizona. That pipeline was built to provide transportation where no rail service was available.

A major factor which contributed to the successful construction of the Black Mesa pipeline was the fact there were only a limited number of parties from whom rights-of-way had to be obtained. Much of the route which the pipeline crosses is Navajo Reservation property, and since the tribe benefits from the mining of the coal (which is mined under a lease from the tribe), it was in the interest of the tribe to grant the necessary rights-of-way. This is an unusual situation. Normally, a proposed pipeline will cross property owned by a practically unmanageable number of parties. S.318 will help alleviate an unmanageable situation, while at the same time protecting the rights of property owners.

In addition to the fact that coal pipelines have been proven to be efficient, competitive transportation systems, they also offer the unique advantage of being non-intrusive with respect to the lands they cross because they are placed beneath the surface. Therefore, their operation does not disrupt other surface traffic or land use. In sum, coal pipelines are safe, efficient, reliable, economical and non-intrusive. They are a mode of bulk transportation which should be injected into the transportation alternatives available in this country.

The position of NCA and AMC with respect to coal transportation is clear and consistent. We believe that by relying on the marketplace we can best be assured that carriers will be efficient and rates will be reasonable. Accordingly we support granting eminent domain authority to facilitate construction of coal pipelines.

Mr. Chairman and members of the Committee, the value of greater competition for the movement of coal is unquestionable. The benefits to be derived from the encouragement that this legislation will give to the construction of slurry pipelines are enormous. They include serving the public interest of national security through energy independence; improving the domestic economy by bettering our balance of payments in world trade; saving money for consumers through lower rates for electricity, and protecting our environment through the further encouragement of the development and deployment of clean coal technologies. S.318 will stimulate additional transportation competition by enabling construction of coal pipelines and thereby promoting the greater use of U.S. coal and coal products. In closing, I would like to reiterate the belief held at both NCA and AMC that this legislation is desirable, appropriate and timely. I wish to thank the committee for affording me the opportunity to appear before you today. I would be pleased to respond to any questions which you may now have.

Senator CONRAD. Thank you.

Senator McClure.

Senator McCLURE. Thank you very much, Mr. Chairman.

Mr. Senter, I was noting in your statement, you made, I think, valid points of concern for agriculture. You are talking about what it might do to transportation costs of agricultural products—I think all of us are concerned about that. We want some accurate information with respect to it.

We are concerned about water questions, and I think that is a valid concern. I think we need to be conscious of that. I do not want to set aside environmental damage, or risks as a concern, and certainly, the picture you have, or the spill, if it occurred in good, productive farmland, would be a matter of greater concern than it is if it is in some other location.

But I think it is also true to say that a coal spill, from a coal slurry pipeline, once the water is gone, would be easier to clean up than anything we experienced with respect to a break in a petroleum pipeline. Not impossible to do at all.

When you talk about the harm to the railroads, and I am referring to the second page of your statement, you use a term of "estimated at $700 million annually." Is that your figure, or is that theirs?

Mr. SENTER. That figure came from the railroad industry, and that was based on lines that were under consideration to be built. It is an estimate, and how close it is, I am not sure.

Senator McCLURE. We have gotten the figure from them, too, and I just wondered if you had independent information, or whether it was a reflection of their figure. And it appears to be the latter.

With respect to the next paragraph, on the diversion of scarce water resources, Mr. Brolick, in his testimony today, and the attachments to it, identified in their pipeline, the consumption of water has averaged less than 3,800 acre feet per year. And that, if I summarize from his statement correctly, is sufficient to transport 5 million tons of coal. And, if that is correct, those are dramatically different figures than the ones that you show, and I was wondering what the source of your figures is?

Mr. SENTER. Over the years of the debate, the figure that has always been used has been a ton of water for a ton of coal. Now, I am not sure if the short distance that the Black Mesa moves, or the elevation has anything to do with the difference in water that is required, because when you move from Wyoming all the way to the Gulf, basically, it would be feasible that the level of the line would be different and might require more water.

Now, new technology may also be playing in this situation. I am not as familiar as a lot of those that are researching the issue, but we just used the figure of a ton of water for a ton of coal that has been used over the years, and that is how we arrived at our numbers.

Senator McCLURE. You talk about 6 billion gallons of water a year, 3,800-acre feet is about a billion and a quarter gallons.

Mr. SENTER. Well, the difference is whether you are talking about 1 line or a——

Senator McCLURE. I understand that. So 6 billion gallons of water does not sound like an excess estimate of what might happen if you had more than one pipeline in operation. But that would be somewhat on the order of 8,000 or 9,000 acre feet, in my county, which has probably as high a consumption of water as anywhere, about 3-acre feet per acre per year, for irrigation of land.

So you are talking about enough water to irrigate maybe 9,000 acres of land.

Mr. SENTER. Very possibly.

Senator McCLURE. Excuse me. 3,000 acres of land, 9,000 acre feet. Is that correct?

Mr. SENTER. It would depend on which State, what the average rainfall was. You know, every area requires different amounts for irrigation, and so that is very hard to pinpoint, and I do not have any national averages on how much water it takes.

Senator McCLURE. You go down into the 3-crop a year seasons like they have in Arizona and southern California, you would get higher consumption than you would in my State. But 3 acre feet per acre for surface irrigation, if you are using sprinkler irrigation it is half that.

Mr. SENTER. Senator, I think one of the points is that possibly if 1 pipeline was built or 2, the amount of water required might not be that significant to agriculture, but the point is that once it is established you start transferring large amounts of water from basin to basin or you have cash-starved States that can help solve their financial problems by selling large amounts of water to move interstate, then all of the downstream users then suffer because of the drop in water that moves through the system.

So I think the precedent is what concerns us, that once this is established then the movement of water could be the next thing from basin to basin. So we are just concerned that it is a bad precedent.

Senator McCLURE. I understand that. I was just trying to get at the source and the basis of your figures because it contrasts with the statement that Mr. Brolick made earlier, and his were more precise and based upon operating histories rather than traditional positions.

Mr. Kearney, do you have any position with respect to the repeal of 2(c)?

Mr. KEARNEY. We do not.

Senator McCLURE. Chickens, huh?

Mr. KEARNEY. No comment.

Senator McCLURE. Mr. Lema?

Mr. LEMA. Senator McClure, the National Coal Association does have a clear position with regard to section 2(c). We favor continuing the provision in present law which prohibits rail carriers and their affiliates from holding or owning Federal coal leases, and therefore we oppose the repeal of section 2(c).

We do so, we believe, for legitimate reasons. One certainly is obvious. We think that a railroad, particularly in the west where railroads hold extensive market dominance over coal transportation, if they were also to engage in the supply of the coal itself, given the same rail carrier who would supply the coal is also holding the independent coal producer captive, we believe that would diminish coal supply competition in the long run, which does harm the independent coal producer and, we believe, harms the public in the long run because when the fuel supply competition is reduced, the consumer pays.

Senator McCLURE. You are not satisfied with the assurances and the compromise that was worked out before guaranteeing access and equal competition?

Mr. LEMA. Senator, we have not found that yet to be an accommodation that would resolve our concern. We still oppose the repeal of 2(c).

Senator McCLURE. I understand that, and I knew that was what you were going to say. But it seems to me that what we had in the last time around, the final form of the 2(c) repealer, that required that a railroad or its affiliate must consent to cooperative leasing, which means it must automatically lease its coal adjacent to the Federal tract to the successful bidder in the lease sale on terms predetermined and announced by the Secretary of the Interior, that a railroad must disclose all the data it possesses on its own coal adjacent to the Federal lease tract to all potential bidders before the lease sale, that a new Federal coal acreage limitation be imposed on the railroad or its affiliate, that full disclosure is required of coal supply and transportation and so on, that those were reasonable balances to the competitive opportunities for those that were coal producers or coal affiliates.

There were some other changes made in it as well. I know you are familiar with those, just as familiar as I am. I will not take the time of the Committee to debate those today.

And I think it is also fair to say that there is a long history of relationships between producers and shippers and railroads deserve some of the suspicion that is focused on them by others. That is also one of the reasons why it is easier to support your position with respect to coal slurry. But in this life you give a little, you get a little, and I would suggest that is not a bad deal.

Mr. LEMA. Senator, two points that I would like to make briefly, if I may. Coal producers do not want to be in the transportation business, and we do not find it necessarily valid for those in the transportation business to be engaged in supply of coal in competition with those who they hold captive. I think that is repetitive.

Secondly, though, on the very comprehensive compromise that you referred to and certainly it took a lot of effort and it is very comprehensive, the one that was proposed last, one of the greatest difficulties, it seems to us, is that should harm occur, and we are afraid that it still might occur, the remedy is after the fact.

The market is lost, and we are concerned about the future and the long run and that gives us still some concern.

Senator McCLURE. I understand that. And it is based upon a great deal of suspicion and some not unfounded fear. I understand that.

Thank you very much, Mr. Chairman.

Senator CONRAD. Senator Burns?

Senator BURNS. I would just ask did the Farm Bureau take a position on this?

Mr. SENTER. Yes, sir. The Farm Bureau is opposed to the legislation also.

Senator BURNS. That is the only question I have. Thank you very much.

Senator CONRAD. Mr. Senter, what do you think the reaction would be in the northern plains after the drought that we experienced last year with the whole question of consumptive use of water that is attached to coal slurry, coupled with the threat at least of rising grain rates because of losing loads on the rail carriers?

What is your sense, from your organizations and the organizations you are speaking for here today? What would be their reaction be to this legislation? What has been the reaction?

Mr. SENTER. We have visited with our State presidents and officers across the country as we started taking a look at new legislation in this Congress. It was very evident when this issue came up that the water was very much on everybody's mind, much more so than we have seen in past years.

So everyone is concerned about is this a long-term drought, was it one year? But the water issue is very important. But also, you know, equally important was the eminent domain part of it. If you changed grain freight rates just a few cents a bushel it would be the difference in a positive or negative cash flow for many of those grain producers out across the country. It is just a cost of doing business.

And so we think it is beyond the emotional water property right issue. This is also a business decision that we as producers have to make because it could cost us competition in our grain freight rates and increase our cost of production, which increases the cost of food, by the way, in the long term to consumers.

So they may have a few cents difference in an electric bill, but it could also come back to the grocery store. On the other side of it, if our freight transportation rates increase, it is a direct pass-through by many in the food chain that pay for transportation.

Senator CONRAD. All right. Mr. Lema, Mr. Kearney, anything that you would want to add at this point after hearing the various discussions that we have had during the morning? If there is anything that you would like to add, please feel free to do so.

Mr. KEARNEY. The first thing I would like to do, Mr. Conrad, is to try to put this whole issue in what I would think is perspective. We are not talking about massive manufacture—I should not say manufacture—massive construction of pipelines all over and throughout the country.

What we are really talking about is an opportunity for another technology to be utilized by the electric utility industry to transport fuel. Whether or not that is going to be economical is probably going to be decided on a case basis, and whether or not it will ever be considered will depend upon passage of legislation such as we are discussing today, some type of procedure that will make it feasible to consider it.

We have heard today many different aspects of what is wrong with building or having this new technology and what is right. And I need not remind you gentlemen, who are more intimately involved and knowledgeable about this legislation, that all of these issues are taken into account in the legislation. A Cabinet Secretary must make a determination that it is in the national interest and that there are certain things that he has to consider before he can grant that eminent domain.

The Committee has been very sensitive to the question of water rights, and I can certainly sympathize with people from this section of the country that are concerned about it. But the legislation considers that. The legislation also considers the environment. It has to be passed on by the Environmental Protection Agency, and specifically with the Water Act.

Whether or not we are going to have many pipelines or not is going to depend upon how these things play out in the legislation. But we will never have it unless we are in a position to at least consider it, and we will not be in a position to consider it unless we have legislation of this type.

Thank you.

Senator **Conrad**. All right. Thank you, Mr. Kearney.

Mr. Lema.

Mr. **Lema**. Mr. Chairman, you are very generous. If I can take a minute just on a concluding point, earlier there was advanced the notion that doesn't the effect of a coal pipeline already exist under the ICC's practice with regard to rail rate reasonableness. They call their practice Constrained Market Pricing, and we would note that in our estimation that is not market pricing at all.

But their standard on rate reasonableness, the ICC considers how much a coal shipper theoretically—I underscore "theoretically"—would pay if he were to use an alternative source of transportation that simulated—not real but simulated—not a real in-place transportation system. The simulated alternative might in fact be a hypothetical coal pipeline.

Now that standard is seriously flawed. It amounts to no more than an empirically-driven game characterized by 3 gross weaknesses. First, that standard relies on analyzing data conjured by making numerous, highly-contestable assumptions. Secondly, it produces inordinately time-consuming argument, to no one's benefit, finally. And thirdly it is excessively high in cost often requiring one-half to $1 million or more for a complaining shipper just to develop the evidence, with no assurance about what the result might be.

I wanted to put that in the record, if I could, Mr. Chairman. I sincerely appreciate the time you have allotted us.

Senator **Conrad**. You certainly may, and I may make just an observation, that I share your frustration on that score. Those of us who have reviewed extensively the record of the ICC on these matters cannot come away with any conclusion but that that procedure simply does not work.

There are very few people with sufficiently deep pockets to even attempt to go through the process, to even gather the evidence to determine the strength of their case. I think you have made a very good point.

I might also note that Mr. Kearney seeks recognition.

Mr. **Kearney**. Mr. Conrad, after Chairman Johnston's rather colorful remarks about that I was not going to say anything, but since Mr. Lema opened it up I certainly agree with what he said, and I would like to make one more point.

It is a point that maybe the coal slurry pipeline or the labor people ought to make. And that is they are not interested in a paper coal slurry pipeline. They are interested in a real pipeline because that way there is the opportunity for profit and advancement and there is the opportunity for work.

So the fact that there is a paper coal slurry pipeline is not very much of interest to people like that.

Senator CONRAD. Let me just note for the record there is certainly no unity in the labor movement on this question, and I am sure you understand that. My part of the country's labor movement does not think very highly of this proposal, nor do the farmers in my part of the country think very highly of it. So there is a significant split even within the labor community.

Mr. Senter?

Mr. SENTER. There is unity in the farm community which is seldom seen in this town. So when we all get together everybody should take note that surely we are right.

Senator CONRAD. The American Farm Bureau has also submitted a statement for the record and we expect a statement from the Department of Energy as well.

The record will remain open now for 2 weeks and we will include an opening statement from Senator Mitch McConnell of Kentucky into the record.

Again, thank you all very much for your participation.

[Whereupon, at 12:25 p.m., the hearing adjourned.]

APPENDIXES

APPENDIX I

RESPONSES TO ADDITIONAL QUESTIONS

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100 YEARS
OF PRIDE
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1889 - 1989

UNITED ASSOCIATION
of Journeymen and Apprentices
of the Plumbing and Pipe Fitting Industry
of the United States and Canada

Office of the General President—Marvin J. Boede

General Office File Reference: MAC

May 3, 1989

The Honorable J. Bennett Johnston, Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510-6150

Dear Chairman Johnston:

This is in response to your letter of April 26, asking additional questions for the record in connection with your April 20, 1989 hearing on S.318, the Coal Distribution and Utilization Act.

My responses are attached

With thanks for giving me an opportunity to testify before your committee, I am

Sincerely yours,

Marvin J. Boede

Marvin J. Boede
General President

vlj

United Association Building · 901 Massachusetts Ave., N.W. · Washington, D.C. 20001 · 202/628-5823

MARVIN J. BOEDE, *General President*
CHARLES J. HABIG, *General Secretary-Treasurer*
M. EDDIE MOORE, *Asst. General President*
MARION A. LEE, *Asst. General Secretary-Treasurer*

Questions from Senator Johnston

(1) Why do you think this bill is good for labor?

Answer: The bill clearly is good for those working men and women who will build, operate and maintain pipelines. And it is good for that part of the work force employed in the production of valves, pumps, steel pipe and heavy equipment.

Other jobs would be generated in the construction support sector, including jobs in the travel, food service, hotel and motel, insurance and other industries.

A Bechtel Corporation study of the jobs impact of the seven pipelines proposed in 1983 concluded that a total of 500,000 jobs would be created.

We also believe the railroad industry has greatly exaggerated the alleged adverse impact of pipelines on railroad jobs.

In 1985, the Energy Information Administration of the Department of Defense published an economic assessment of four proposed coal pipelines.

The study, entitled Coal Slurry Pipelines: Impact on Coal Markets, projected a 230 million ton rise in coal production from 1984 to 1995, and estimated that the four pipelines could transport about one-third of that increase.

The EIA study concluded that, if these four coal pipelines were in operation by 1995, "Railroad revenues from coal transportation would still be almost 60 percent higher and railroad ton-miles nearly 30 percent higher in 1995 than in 1984." (Emphasis added.)

If business increases, we ask, how can jobs be lost?

Furthermore, in its 1978 analysis, the Office of Technology Assessment concluded that "...Railroad economic performance will benefit from increases in coal and other commodity transportation revenues even in the presence of pipelines." (Emphasis added.)

(2) Do you think eminent domain legislation is necessary in order for pipelines to be built.

Answer: Mr. William Dempsey, president of the Association of American Railroads, recently told a House committee that "eminent domain is a power to be exercised only when the public's need is a compelling one."

I couldn't agree more with that statement and I submit that the "public's need" has been clearly demonstrated by the behavior of the railroads themselves.

They have refused for many years to allow pipeline builders to cross railroad tracks anywhere in the country. And in pursuit of that objective, they have entered into a conspiracy to violate the antitrust laws of this nation which are there to protect all America citizens from the ill effects of just such a concentration of economic power.

A Federal court in Beaumont, Texas and another in South Dakota have found railroads guilty of conspiracy to violate antitrust laws while in the very process of blocking construction of a 1,400 -mile pipeline from Wyoming to Arkansas and Texas.

If the bill we have before us had been enacted into law, those conspirators would not have been able to manipulate state laws to their own narrow purposes.

Thus, by their own actions they have demonstrated the public necessity that must be present for exercising the right of eminent domain.

The public deserves and expects in the United States of America to have and to benefit from a free market and fair competition.

But, they can expect neither where coal transportation is concerned unless we pass this bill.

The courts must and have heavily penalized the railroads financially for their conspiracy--over two billion dollars.

But, the same opportunities for conspiracy will still be there unless we can pass eminent domain legislation.

(3) Do you support pipeline legislation solely because of your interest in jobs?

Answer: It is my responsibility to protect and promote the best interest of the 330,000 members of the United Association. Our support of S.318 is certainly compatible with that responsibility.

However, our determination to fight for enactment of this legislation, however long it takes, is founded upon our conviction that the implications of this struggle go far beyond the narrow needs of our own membership.

We believe that all American citizens live under a Damocles sword insofar as energy security is concerned.

Our continuing, and growing, dependence on foreign oil to power our homes, offices and industries provides a glaring "window of opportunity" for those nations who would do us harm.

We are in total accord with that long line of U.S. presidents who have supported increasing coal production and use in order to move the nation closer to energy independence.

We believe eminent domain legislation will open the way to an alternative system for hauling coal which, because in certain circumstances it is faster and cheaper, will encourage more use of American coal and less use of foreign oil.

We also believe it is in the national interest to maintain a free competitive market and to respect antitrust laws precisely because they serve the national interest.

We believe, in sum, that this bill is in the best interest of the United States of America. If so, it is in the best interest of our members even apart from any job considerations.

Questions from Senator McConnell

If this bill is passed what is the likelihood of a slurry line being built West to East?

Where do you think the lines are most likely to be built?

Answer: To the best of my knowledge there are no proposed pipelines that would carry Powder River Basin coal into markets served by Kentucky coal.

Nor is it likely that such a pipeline will be proposed. In previous years potential pipeline builders made it clear that pipelines of that length, into the eastern market, were not economically feasible.

Furthermore, boilers in plants served by Kentucky coal require a higher BTU content than Powder River coal can supply.

It should also be noted that we now have available a clean coal technology that will allow the slurry mixture to be fired directly into a boiler like fuel oil.

With minor retrofitting, plants now importing foreign oil could switch to clean coal and open up that market to coal from Kentucky, thereby serving both the national interest and the interst of the coal industry in Kentucky.

It is difficult to say where coal pipelines would be built if S.318 passes Congress. There are no specific projects pending at the present time.

Obviously pipelines will only be built if they can offer an economically more attractive alternative to rail and barge transportation.

Competitive factors, too hard to predict, will determine whether pipelines will be built and where they will be located.

EC

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INTERNATIONAL UNION

TCU

AFL-CIO, CLC

J. F. OTERO
International Vice President

May 5, 1989

GY AND NATURAL RESOURCES
RECEIVED
MAY 08 1989
WASHINGTON, D.C. 20510

Honorable J. Bennett Johnston, Chairman
Senate Committee on Energy and Natural Resources
Washington, DC 20510-6150

Dear Senator Johnston:

This is in response to your letter of April 26th requesting answers to additional questions for the record relating to the April 20, 1989 hearing on S. 318.

1. Senator Johnston's question about rail job losses. It is our belief that any coal that is moved in a pipeline would be taken from the current tonnage now being moved by rail, therefore the rail job loss would be in current employment.
2. Senator McConnell's question about projected job losses within the State of Kentucky. We have no formal studies on individual states, however we believe any coal now being moved by rail in the state that is diverted to a pipeline will cause the same proportional job loss as cited in our testimony.
3. The question about the Ohio pipeline. We do not have records available to us directly relating to the jobs affected by the Ohio pipeline operation.

I again thank you for the opportunity to take part in this important hearing.

Sincerely,

J F Otero

J. F. Otero
International Vice President

sjr

cc: K.O. Richardson

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May 8, 1989

The Honorable J. Bennett Johnston
Chairman
Committee on Energy and Natural Resources
United States Senate
Dirksen Senate Office Building, Room 354
Washington, D.C. 20510-6150

Dear Senator Johnston:

During my April testimony before the Senate Committee on Energy and Natural Resources in support of the Coal Distribution and Utilization Act, additional information was requested on several issues. Attached is a response to those requests.

Sincerely,

H. J. Brolick
Executive Vice President

/dc
Enclosure

Additional Information Requested by Senator Rockefeller
from
H. J. Brolick of Williams Technologies, Inc.
and
Stuart Serkin of Coal & Slurry Technology Association

Question: What do you expect to be the major projects involving coal slurry pipelines and what information do you have to support these expectations?

Response: The following are considered the highest priority for coal slurry projects in the near term.

1. Export projects to the Pacific Rim.

   In 1986 import demand for steam coal in Pacific Rim countries was 51 million tonnes. According to the East West Center, low scenario projection for steam coal by the year 2000 in the Pacific Rim is 143 million tonnes. This is the low import scenario with the high import scenario being an increase to 176 million tonnes of steam coal by the year 2000. Steam coal to this region has traditionally been supplied over 60% by Australia with other major suppliers being South Africa and Canada. The U.S. provides essentially none of this coal. The opportunities for western U.S. coal exports to the Pacific Rim will only be available if the U.S. can reduce its inland transportation costs. While rail facilities are currently available from the major coal areas to the West Coast, they have not been successful in pricing that provides delivery at rates competitive to Australian suppliers. The Powder River Basin is one of the major energy resources in the world and with proper beneficiation and transportation technology can become a major source of export funds for the U.S. Coal slurry pipelines offer the opportunity to open these western coal resources to the Pacific Rim.

2. Eastern U.S. Export Markets

   Twenty-two million tonnes of steam coal were exported to the European market in 1988. All of this came from eastern U.S. coal sources. With the advent of coal-water fuels into the European market, there may be even greater opportunities through the use of coal slurry pipelines for export of eastern coals.

   According to policy analysts at the National Coal Association, a reduction in coal transportation costs of $10/ton (clearly within the savings indicated by the DOE/EIA study, "Coal Slurry Pipelines: Impact on Coal Markets", April 1985) would make U.S. coal extremely competitive both to Europe and the Pacific Rim.

3. U.S. Coal Slurry Projects

The most likely U.S. coal slurry projects are those aimed at a very specific market such as a project where highly beneficiated fine coals would then be slurried and shipped to a power plant possibly using combined cycle gasification technology to provide the fuel for power generation. Other opportunities may be pipelines using coal-water fuels which would displace oil thus increasing coal sales. It is highly unlikely that western coals will be shipped to eastern markets by slurry pipeline in large quantities in the foreseeable future because boiler design is for a range of bituminous coals rather than the lower Btu sub-bituminous coals of the Powder River Basin. Also, current Clean Coal Technology funds are concentrating on methods of beneficiation or burning or scrubbing of eastern coals to reduce emissions.

Additional Information Requested by Senator Burns
from
H. J. Brolick of Williams Technologies, Inc.

Question: What is the name of the deep aquifer from which Black Mesa draws its water?

Response: The name of the aquifer is the Navajo aquifer and is commonly referred to as the N-Aquifer. The Navajo aquifer has a maximum saturated thickness of about 1,050 feet in the northwestern area, and the aquifer thins to extinction to the southeast. Water is under confined conditions in the central 3300 square miles of the area. To the east, north and west of the Black Mesa, the aquifer is exposed at the surface and water is unconfined.

Additional Information Requested by Senator Conrad
from
H. J. Brolick of Williams Technologies, Inc.

Question: What is the effect of heavy metals and other possible carcinogenics contained in the coal in the event of a leak or water discharge at the pipeline terminus?

Response: There has been a great deal of investigative work on the potential for heavy metals or organics to go into solution during the slurry process with the possibility of a hazardous liquid resulting. ETSI constructed and operated a 50 ton per hour coal slurry test facility for nine months and the results of that extensive test program allowed the ETSI project to apply for and receive all state and federal air and water discharge permits required by those states in which the pipeline was expected to operate.

The ETSI investigations found that dissolution of metal ions indigenous to coal does not occur to a significant extent and the heavy metals in coal are generally insoluble in water under the operating conditions in coal slurry systems. The heavy metals listed as priority pollutants by the EPA have not been detected in concentrations approaching the discharge standard set by Federal and State environmental agencies for industrial water quality under the Federal Water Pollution Control Act of 1972. Studies show that concentrations of heavy metals in the discharge water do not differ significantly from those in the original water.

In regard to organic compounds, the ETSI investigations of actual and simulated discharge waters did not indicate the presence of any of the 113 organic compounds listed as priority pollutants by the U.S. Environmental Agency. Discharge water quality is more dependent upon the innate quality of transport water than changes resulting from contact with the coal. With respect to water treatment requirements and costs, operational data from the Black Mesa Pipeline and the ETSI coal evaluation plant demonstrate that only minimal mitigation is necessary to achieve a water quality suitable for reuse of discharge waters in the power plant or for discharge to receiving streams. Biological systems were not even considered to be required to treat discharge waters at ETSI commercial plant because conventional treatment methods of settling and flocculation resulted in discharge waters ,much lower than permitted discharge value 30 parts per million for all water sources tested. Again, discharge water quality is more dependent upon the innate quality of the transport water than changes resulting from contact with the coal. A more detailed account of the ETSI findings was presented in a letter to Morris K. Udall, Chairman, Committee on Interior and Insular Affairs, on March 2, 1983, by Paul G. Doran, President of ETSI.

Further, in a final report to the State Water Control Board, Richmond, Virginia, in January, 1984, by the Department of Chemical Oceanography, College of William and Mary, Gloucester Point, Virginia, regarding Trace Organic Analyses of Effluent Waters from a Model Slurry Pipeline carrying Appalachian Bituminous Coal, the following conclusion was reached.

"Effluent waters from a model coal slurry pipeline have been analyzed for trace dissolved organic compounds. The model pipeline was operated under conditions simulating those proposed for a slurry pipeline from the region of Bristol to Hampton Roads, Virginia. Acidic, neutral and basic organic compounds in the separated waters were determined. Concentrations of individual compounds detected were generally less than 0.5 parts per billion (ppb) and never exceeded 6 ppb. Adsorption experiments using coal slurry sorbents indicate that coal particles act as sorbing surfaces under coal slurry pipeline transport conditions."

We would be pleased to provide a copy of both the Paul G. Doran letter and the report by the College of William and Mary at your request.

Additional Information Requested By Senator Johnston
from
H.J. Brolick of Williams Technologies, Inc.
and
Stuart Serkin of Coal & Slurry Technology Association

SENATOR JOHNSTON'S QUESTIONS

Queston 1: What technological steps can be taken to ensure that water is cleaned up at the pipeline terminus?

Response: In most cases, there should be no need for water to be discharged from coal pipeline systems. In the Black Mesa Pipeline using conventional coal pipeline technology (50% coal and 50% water), the water remaining after the coal and water are separated is cleaned and used in the Mohave Power Plant's cooling system. A coal slurry fuel (70% coal, 29% water, 1% chemical) is fired like fuel oil and because the water and coal are not separated, there is no water discharge. Because coal slurry fuels are one of DOE's five preferred clean coal technologies and can reduce the sulfur content and lessen the need for coal scrubbers, coal pipelines can actually reduce the total water demands when compared to a dry coal delivery system.

In the event coal is delivered for export, any water removed from the slurry mixture can be cleaned to potable quality or for industrial uses. The conventional treatment methods of settlement and flocculation have proven to sufficient to meet statutory requirements, although conventional biological treatment could be implemented if necessary. Section 10 of S. 318 clearly specifies that no national interest finding can be made unless the Administrator of the EPA can reasonably expect that any water discharge will meet the requirements of the Federal Water Pollution Control Act.

Question 2: How much water will coal slurry pipelines use?

Response: Conventional coal pipeline systems use coal slurry mixtures of about 50% coal and 50% water. A coal slurry pipeline uses approximately 740 acre feet of water per million tons of coal. One acre foot is equal to 325,851 gallons. This equates to 240 gallons of water per ton of coal shipped. Regarding the Black Mesa Pipeline, after being separated from the coal the water provides approximately 10% of the make up water required by the cooling tower of the Mohave Power plant. The new technology of coal slurry fuels require almost 60 percent less water than conventional slurry mixtures, and will be applicable for some projects where the coal slurry fuel will displace imported oil products.

The proposed ETSI pipeline would have required 20,000 acre feet annually to transport 25 million tons of Powder River coal to Oklahoma and Texas. The water contract signed with South Dakota for water from the Oahe Reservoir consisted of less than 10% of the reservoir's evaporation rate. Several competing technologies use substantially more water than coal pipeline technology. For example, coal gasification uses 2-1/2 times the amount of water as a conventional coal pipeline and mine-mouth electric generating facilities require from five to ten times the amount of water as coal pipelines.

Recognizing that water resources are scarce, particularly in the West, Section 5 of S. 318 enhances a state's ability to protect its water resources and to make water allocation decisions consistent with their needs and to put any terms, conditions or prohibitions on the use of that water.

Question 3: If this bill passes, what do you anticipate as the total haulage by coal pipelines (tons/year) by the mid-to-late 1990's?

Response: The 1985 EIA/DOE report, "Coal Slurry Pipelines: Impact on Coal Markets", estimates that if coal pipeline legislation were enacted, approximately four pipelines would carry a total of 47 millions tons of coal a year by the mid-to-late 1990's. Because of the time consumed in the national interest showing (including a full blown Environmental Impact Statement) which would take a minimum of 2 years and a two year engineering/construction phase, as well as time required to develop markets, we do not estimate that any pipeline would be operational until the early-to-mid 1990's even if S. 318 were enacted in the very near future.

Estimates of 250 million tons/year of coal pipeline haulage, the figure the railroads have used for the last 12 years is even less realistic now than it was in the late 1970's. Long term coal haulage contracts signed under the Staggers Act have tied up over 70% of coal rail haulage and during the life of such contracts (some up to 35 and 40 years) coal pipelines must create or seek new markets. S. 318 only allows coal pipelines to compete with railroads for coal haulage. In some cases approved pipelines may never be built because railroads have lowered their rates to meet the competition coal pipelines provide.

Question 4: What relationship does coal slurry have to clean coal technology?

Response: Coal slurry has been adjudged by the Department of Energy to rank among the five top clean coal technologies [see (America's Clean Coal Commitment, DOE/FE 0083) February, 1987].

The fine pulverization allows the removal of up to 70% of the pyritic sulfur thereby reducing utility emissions. The waste transported to end-users is significantly reduced and tank storage eliminates coal pile run-off and coal dust. In addition to the sulfur removal, metals, ash and other impurities can be removed as a part of the fine grinding in slurry preparation. Close monitoring of recent firings of a coal slurry fuel in Nova Scotia determined that these slurry fuels were actually cleaner firing than competing fuel oil.

Additional Information Requested by Senator McConnell
from
Henry J. Brolick of Williams Technologies, Inc.

Small Coal Operators

Question: In your opinion, does the ten per cent set aside for small and independent operators address the situation of small operators being locked out of use of the pipeline?

Response: The provisions in both S. 318 and H.R. 402 give protections to small and independent coal producers by keeping open up to ten percent of the pipeline's capacity to satisfy the demands of those small and independent producers (Section 4(c)). Section 11 (a)(1) prohibits the pipeline from "unreasonably discriminating" against shippers seeking to use the pipeline. Coal blending, the combination of low and higher-sulfur coals, which is ideally suited to coal pipeline technology, can open new domestic and export markets for coal and can specifically provide new markets for small producers. In contrast, it is to be noted that in most cases small producers cannot obtain unit train rates offered to larger coal producers. Pipelines would not be allowed such a differential because of Section 11 (a)(1)'s prohibition against "unreasonable discrimination".

The proposed Coalstream Pipeline anticipated gathering coal from a number of Appalachian mines and blending or batching the coal as required by the utility shippers. Proposed pipelines in the East have anticipated using coal from a number of small producers both by contract or on the spot market. Pipelines anticipate that utilities would buy capacity of pipelines and the coal they bought, whether from small or large producers, would be shipped in the pipeline. And even if a utility bought solely from large coal producers, ample capacity would remain open for spot purchases from small producers under this section.

The coal pipeline industry endorses Section 4(c) as providing adequate protection to small and independent coal producers, a protection not afforded by the railroads.

Lower Price/Export of Coal and Lower Prices
(Answer to two questions combined)

Question: Do you think that what occurred in Ohio (rail rates dropping by about 45%) was an isolated situation involving special circumstances or would similar results be experienced in Kentucky?

Question: If a coal slurry pipeline were in place in Kentucky today which could move Kentucky coal to markets in states like Florida, Georgia, Michigan and overseas shipping terminals at Hampton Roads and New Orleans, would rail rates be about the same as they are now or would they be lower?

Response: The 1985 EIA Study completed by the Department of Energy (DOE/EIA-0468) is the only independent study to compare coal pipeline and rail rates. The specific comparison of rates that would have similarities to Kentucky coal would be as follows: the 1995 estimated rate from West Virginia to North Florida was $33.68/ton for rail vs. $13.18/ton for coal pipelines. For a Southwestern Virginia to Hampton Roads route, the estimated coal haulage rate comparison was equally dramatic: $20.03/ton for the rails and $7.71 for the pipeline. Both of these routes had export capacity. Japanese have testified that if we could lower our delivered cost of coal by $5.00/ton, they would significantly augment their imports. The Italians have endorsed coal pipeline legislation repeatedly as a way to reduce the cost of transporting coal to port. A large prospect for increased exports is presently Europe and coal slurry fuels and cheaper transport can open up markets, particularly for eastern coals, heretofore closed to expensive American coal.

Consol's decision to enter the coal pipeline business in the 1950's by building the Eastlake pipeline was necessitated by ever-increasing rail rates which were projected to go on unabated. When the pipeline went into operation in 1957, their transportation cost per ton of coal was $2.20, while the railroads were charging $3.47. During the next six years, 7.1 million tons of coal were shipped via pipeline, and the cost savings to the electric utility consumer amounted to over $9 million.

But, the real importance of this project went beyond this $9 million savings, for in 1963, the railroads, faced with Consol's continued pipeline operation and the threat of additional coal pipeline competition, finally agreed to negotiate unit train rates for the entire region.

The 1985 EIA Study, experience from the Eastlake Pipeline in Ohio, proposed coal pipelines in the West (ETSI Pipeline Inc.) and the East (by Vepco and Transco) have all added competition and had the effect of dramatically reducing rail haulage rates. The proposed ETSI Pipeline's competition for a 21 year contract for coal delivery to Arkansas Power and Light brought on a rate reduction by the railroad of over $16 billion compared to the rate schedule originally quoted by the Burlington Northern before a coal slurry pipeline created competition for that coal transportation contract.

Economists at the Consumer Federation of America and the 1985 EIA/DOE study both have pointed out that enactment of S. 318 would have the effect of moderating rail rates whether certain coal pipelines were built or not because of the effect competition would have on rail haulage rates.

If coal pipeline legislation had been enacted some number of years ago, I think rail rates would clearly be lower for Kentucky coal. If the legislation is enacted, putting competition in the coal haulage picture, future railroad pricing policies would to some extent determine which coal pipelines are economic.

Loss of Rail Jobs

Question: Do you know of any studies which show the projected job losses within the state of Kentucky which might result from the construction of a coal slurry line within the state?

Question: Do you know the number of railroad jobs which were lost when the Consolidated Coal Company built its pipeline in Ohio?

Response: The decade old study done by the Office of Technology Assessment (OTA) has been quoted (and misquoted according to the author of the study) as applying to today's rail industry, a drastically altered and substantially deregulated business with a work force reduced by approximately 40% class A workers. The author of that outdated study has later stated that at no time did he indicate that rail workers would be replaced by each pipeline worker. In fact, competition by bringing down the rail delivered price of coal might spur a boost in rail and pipeline delivered coal.

To the best of my knowledge not only were no rail jobs lost because of the Ohio pipeline, but the introduction of unit train rates kept utilities burning American coal rather than seeking alternatives.

There is no reason to conclude that construction of a coal pipeline in Kentucky would be any different than the data applicable nationally. We do not anticipate that there will be any rail job loss in Kentucky if a coal pipeline were constructed there: to the contrary, we think that there would be a net job increase for the railroads, construction industry and the mining industry.

A brief summary of the OTA findings is as follows:

1. Even though railroads overall are more labor intensive than pipelines, the employment impact of coal pipelines compares favorably with employment generated by railroads for 20-year period due to the indirect employment each transportation mode generates in construction and equipment manufacturing.

2. The railroad industry would not be financially ruined, but would continue to enjoy increased revenues due to increases in coal and other commodity transportation, as the 1985 EIA report also concluded.

3. The reductions in railroad employment cited in the OTA report were not references to reductions in current employment, but references to future additional railroad employment that may exist in the absence of pipelines.

4. The OTA report does not state anywhere in the study that there is a ratio of six railroad jobs lost for

each pipeline job gained, according to the director of that part of the study.

Today railroads carry about two out of every three tons of coal produced in the United States to utility and industrial plants and to ports engaged in shipping America's coal to export markets. The long-run demand for coal and the ability of railroads to sign long-term contracts granted by the Staggers Act of 1980 assure that the vast majority of domestic coal shipments will continue to be made by rail in the foreseeable future with or without coal pipeline competition.

Coal production is projected by the Department of Energy to rise to over 1.1 billion tons of coal by the mid-1990's, 230 million tons more than was produced in 1984. If the four pipelines estimated by the Energy Information Administration (EIA) in its extensive 1985 economic assessment were operating by 1995, they would carry about 47 million tons of coal each year [EIA, Coal Slurry Pipelines: Impact on Coal Markets, DOE/EIA-0468, 1985].

This leaves a rounded 1 billion tons annually to be carried by existing coal transportation. Railroads, the major carriers of coal, then will carry the bulk of the existing market and they will carry the greater share of the expanding market.

It is also important to recognize that the contract provisions of the Staggers Act provide railroads with a secure climate for investment and railroad labor with a safety net against sudden job losses resulting from internecine market warfare. With approximately 70 percent of coal traffic under long-term contracts today, railroads and rail labor are protected from sudden, massive shifts of existing coal traffic and rail jobs to their competitors.

Moreover, lengthy pipeline engineering, contracting, permitting and construction periods -- approximately five years -- also provide for smooth market transition.

Because railroads would continue to haul the bulk of coal, EIA found that should the four pipelines they assessed be built and operate at the agency's projected rates, railroad revenues would not be adversely affected and coal users would benefit:

> "...Railroad revenues from coal carriage would still be almost 60 percent higher and railroad ton-miles nearly 30 percent higher in 1995 than in 1984..." and "Coal users could realize savings of between $200 million and $1 billion in 1995...."[EIA, Coal Slurry Pipelines: Impact on Coal Markets, p.x]

To appreciate the magnitude of potential job creation of coal pipeline systems, it might be instructive to review some past estimates of the direct and indirect employment benefits of conventional coal pipeline systems. Based on data computed by Bechtel engineers for the ETSI pipeline and extrapolated for the construction of the major past proposed pipelines, the construction of these pipelines offered a wide range of new jobs and materials production for the American worker.

In the construction sector, 50,000 new jobs would have been created for boilermakers, carpenters, cement masons, electricians, ironworkers, laborers, millwrights, operating engineers, pipefitters, welders, teamsters and others. The construction support sector would have required 100,000 jobs and the production of valves, pumps, steel and heavy equipment would require 350,000 jobs. Demand for steel pipe would have required the production of 2.9 million tons of pipe, more than twice the average annual production of the 1970's -- good years for steel. To run the pipeline systems on an annual basis, 5,000 new jobs would have been created for pipefitters, welders, mechanics, laborers, electricians, engineers and others working at the coal preparation stations and pump stations.

To assure that the full range of transportation and coal processing technologies will be available for application in the 1990's, coal pipeline enabling legislation needs to be enacted this Congress. Failure to enact such legislation will deny a competitive mode of transportation access to the market, locking out new investment into the pipeline industry, vital to our nation's economy and security, and limiting our technological response to the challenge of coal-rich products. This is an expensive price to pay when the bottomline conclusion of government and congressional studies is that pipeline competition would not threaten the financial health of the railroads or the job security of railroad labor.

ASSOCIATION
OF AMERICAN
RAILROADS

William H. Dempsey
President

May 8, 1989

The Honorable J. Bennett Johnston
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510

Dear Senator Johnston:

On April 20 your Committee held hearings on proposed legislation which would grant coal slurry pipeline operators the power of eminent domain. On behalf of the Association of American Railroads (AAR), I testified in opposition to the passage of such legislation. Subsequent to the hearing Senator McConnell submitted five questions to the AAR, each preceded by a statement by Senator McConnell. Those questions and the AAR's answers are as follows.

Question 1: In your opinion and I realize you'll have to speculate somewhat, if a coal slurry pipeline were in place in Kentucky today which could move Kentucky coal to markets in states like Florida, Georgia, Michigan and overseas shipping terminals at Hampton Roads and New Orleans, would rail rates be about the same as they are now or would they be lower?

If a coal slurry pipeline were in place today in Kentucky, railroad customers would face higher, not lower, rates. To get the financing necessary to support construction, pipelines would need to enter into long term take-or-pay contracts with their customers. These customers would be high volume shippers who ship coal over long distances. Long distance, high-volume transportation, of course, is the most profitable business for railroads. Take away the railroads' most profitable services and the remaining railroad customers will be forced to pay increased rates, face deteriorating services, or both.

Question 2: I've read a little bit about the coal slurry pipeline built by Consolidated Coal in Ohio and how, whether as a direct or an indirect result of that slurry line, rail rates in the area dropped by about forty-five percent. Do you think that what occurred in Ohio was an isolated situation involving special circumstances or would similar results be experienced in Kentucky?

The drop in rail rates referred to was due to the introduction of unit trains. The rail cars in regular trains must be switched in rail yards so that they are placed in trains with other cars going in the same direction. The cars in unit trains, of course, do not have to be switched since they are going to the same destination. Switching is a very expensive process. Unit trains, therefore, increased the productivity of the railroad industry tremendously and enabled the industry to reduce rates substantially on high volume movements such as those for which coal slurry pipelines are feasible. There is no opportunity now available to similarly increase productivity, regardless of whether pipelines are built, since unit train service is now employed wherever feasible.

The predicate to this question indicated that "the largest component of the delivered price of coal is transportation." For the record, the rail share of the delivered price of coal, on average, has never been the largest component of the delivered price of coal. Since the Staggers Act was enacted, the rail share of the delivered price has fluctuated between thirty and thirty-four percent.

Question 3: I'll start by asking you to explain the [ICC] procedure a coal shipper would go through to prove he could ship cheaper by a slurry line which does not exist. As I've said many times, it seems the one thing coal operators in Kentucky agree on is that it costs a lot of money to transport coal by rail. Do you know if these operators, or the shippers of these operator's coal, have tried to show that their rates would be lower on a slurry pipeline and therefore tried to force you to lower rates? (If yes) - What was the outcome of that effort? (If no) - Why not?

In Ex Parte No. 347 (Sub-No. 1), Coal Rate Guidelines, Nationwide, (served Sept. 3, 1985) the Commission adopted "constrained market pricing" (CMP) to aid in the determination of the reasonableness of railroad rates for captive coal shippers. CMP imposes four constraints on railroad rates, one of which is the "stand-alone cost" (SAC) constraint. Under the SAC constraint, "a captive shipper can have its rates based on the lower costs of an alternate, 'stand-alone' [transportation] system in which the plant size and traffic-base are designed to maximize the efficiencies and production economies" (id. at 27).

The Commission did not impose a formula for applying the SAC. Rather, it "encourage[d] the parties in individual proceedings to develop the evidence which best presents their case" (id. at 31). Essentially, a shipper utilizing the SAC constraint would determine all the costs involved in construction of an alternative transportation system (rail, rail-water, truck-rail, slurry pipeline, etc.) on the assumption that there were no barriers to entry such as the need to exercise eminent domain, and then derive the transportation rate necessary to cover those costs. That rate would then become the ceiling on the rate the railroad could charge the shipper.

While there have been successful challenges to rail rates under the SAC constraint that have been based on hypothetical alternative rail lines, no challenge has ever been based on a hypothetical coal slurry pipeline as the alternative transportation system. Since the SAC analysis proceeds on the assumption that there are no barriers to entry, the logical conclusion is that no shipper has thought it could show that a slurry pipeline could transport coal at rates lower than those charged by the railroad serving it.

Question 4: In your opinion, does this provision [S. 318 relating to small shippers] address the situation of small operators being locked out of the use of the line?

Section 4(c) of S. 318 states that a slurry pipeline operator must make available to small coal producers up to ten percent of the pipeline's capacity "under the same terms and conditions as other contracting entities." Small coal producers, however, would not be able to compete with large coal shippers under this provision. Pipelines are designed to ship large amounts of coal and therefore they would originate in areas where there are large coal mines. To utilize slurry pipelines, small producers would have to transport their coal to the large coal mining areas where pipelines originate. This added transportation cost would always place the small producer at a competitive disadvantage. In addition, small shippers might not be able to take advantage of any large volume rates that a pipeline operator might still be able to offer under this provision.

Question 5: Do you know of any studies which show the projected job losses within the State of Kentucky which might result from the construction of a coal slurry line within the state? Do you know the number of railroad jobs which were lost when the Consolidated Coal Company built its pipeline in Ohio?

We do not know the number of jobs lost when the Ohio pipeline was operating. In projecting employment that would be lost if coal slurry pipelines were built, we've relied on the 1978 Office of Technology report which did not study any pipelines passing through Kentucky. The Tennessee to Florida pipeline, the only southeastern route studied, was projected to transport 32 million tons in the year 2000 at a cost of 2005 railroad jobs (OTA report, p. 78).

Mr. Chairman, thank you for the opportunity to answer these questions. We would be happy to provide any further information you or any members of your Committee might need.

Sincerely,

W. H. Dempsey

EDISON ELECTRIC INSTITUTE The association of electric companies

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May 8, 1989

The Honorable J. Bennett Johnston
Chairman
Committee on Energy and Natural
 Resources
United States Senate
Washington, D. C. 20510

Dear Mr. Chairman:

Thank you for your letter of April 26, 1989. As requested, enclosed are my responses to additional questions for the record relating to the April 20, 1989 hearing on S. 318, the Coal Distribution and Utilization Act. We appreciate your leadership on this important legislation and look forward to working with you. Please contact me at (202) 778-6888, or Jan McKenzie, Senior Legislative Affairs Representative at (202) 778-6470 if you should have further questions or would like additional information.

Sincerely yours,

John J Kearney

John J. Kearney

JJK:jkj
Enclosures

cc: The Hon. Mitch McConnell

From: Senator McConnell

For: John Kearney
Edison Electric Institute

Henry Brolick

ENVIRONMENTAL CONCERNS

IT HAS BEEN SAID THAT COAL SLURRY PIPELINES CANNOT BE CONSTRUCTED AND OPERATED IN AN ENVIRONMENTALLY SOUND MANNER. YET I'VE ALSO HEARD THAT WHEN COAL IS HAULED BY RAIL ROAD, A LOT OF COAL DUST IS BLOWN OFF THE CAR.

QUESTION:

IN YOUR OPINION, WHICH OF THE TWO TRANSPORTATION METHODS POSES THE GREATER THREAT TO THE ENVIRONMENT?

AS I UNDERSTAND CHAIRMAN JOHNSTON'S BILL, IT CONTAINS A PROVISION STATING THAT PIPELINE SYSTEMS WILL BE SUBJECT TO THE FEDERAL WATER POLLUTION CONTROL ACT AND OTHER APPLICABLE FEDERAL ENVIRONMENTAL PROVISIONS. IN FACT, I DON'T THINK THE SECRETARY CAN GIVE THE GO AHEAD TO CONSTRUCT A PIPELINE UNTIL THE EPA ADVISES THAT THE APPLICANT CAN BE EXPECTED TO COMPLY WITH FEDERAL REQUIREMENTS.

IN LIGHT OF THIS REQUIREMENT, WHAT DO YOU THINK LEADS SOME PEOPLE TO BELIEVE SLURRY PIPELINES ARE ENVIRONMENTALLY UNSOUND?

DO YOU THINK THAT SOME OF THE ENVIRONMENTAL CONCERNS RAISED OVER THIS ISSUE STEM FROM THE FACT THAT SOME PEOPLE SIMPLY OBJECT TO THE USE OF COAL AS AN ENERGY SOURCE AND SEE THE END RESULT COAL SLURRY LINE AS OPENING NEW MARKETS FOR COAL?

ANSWERS TO QUESTIONS ON ENVIRONMENTAL CONCERNS

1) All transportation systems, including both railroads and pipelines, involve some impact on the environment. Railroads have environmental and safety considerations such as: noise pollution, potential street grade crossing hazards, traffic tie ups, coal dust blown off cars, etc.

Because most pipelines would be constructed underground, they would have a number of environmental benefits in that they would not contribute to noise pollution, nor traffic congestion. Pipelines have been proven to be a reliable, safe, and efficient means of transportation for both oil and gas. S. 318 requires that each pipeline be analyzed on a case by case basis. Each would be subject to the Federal Water Pollution Control Act and other applicable federal and state environmental laws. The bill also requires that the Environmental Protection Agency (EPA) determine whether it feels an applicant can comply with these environmental requirements before a pipeline can be determined to be in the national interest.

Slurry pipelines are a proven technology. According to an Office of Technology Assessment study, "A Technology Assessment of Coal Slurry Pipelines," pipelines have been used in many other countries to ship coal, sulfur, limestone, iron and other minerals for many years.

Given the fact that the proposed legislation ensures that the pipelines must meet all relevant federal and state environmental requirements, EEI supports the development of coal slurry pipelines as a competitive alternative means of coal transportation.

We believe that under the provision of the proposed legislation, coal slurry pipelines can be constructed and operated in an environmentally sound manner; and that both railroads and pipelines are needed to ensure that coal transportation costs are reasonable.

From: Senator McConnell

For: John Kearney
Edison Electric

David Senter

WATER CONCERNS

IT HAS BEEN MENTIONED THAT THE COAL SLURRY PIPELINE WOULD BE LIKELY TO TO TAX THE ALREADY OVERBURDENED WATER RESOURCES OF SOME STATES.

QUESTIONS:

CHAIRMAN JOHNSTON'S BILL HAS A PROVISION WHICH GIVES STATES THE POWER TO REGULATE THE USE OR EXPORT OF WATER IN THE INTERSTATE COAL SLURRY PIPELINE SYSTEM. IN OTHER WORDS, STATE WATER LAW WILL HAVE PRIMACY IN THE INTERSTATE COMMERCE OF COAL SLURRY.

IN YOUR OPINION, DOES THIS PROVISION ADEQUATELY ADDRESS THE WATER CONCERNS ASSOCIATED WITH THIS BILL?

ANSWER TO QUESTION ON WATER PROVISION

2) A very real concern regarding coal slurry pipelines is the use of water. Ensuring that water used in a pipeline does not jeopardize water needed for drinking, agriculture or other purposes is a critical component of this legislation. We believe that giving states the power to regulate the use or export of water adequately addresses any water concerns.

Additionally, we understand that new technologies are being developed which may reduce the amount of water needed.

The water provisions in S. 318 have been carefully crafted over the years to ensure that the issue of water rights and use are fair and meet the concerns of the many competing interests. The legislation requires that the pipeline distribution systems, including any discharge of water, meet the requirements of the Federal Water Pollution Control Act and other applicable State and Federal environmental control laws. Much of the language in the bill concerning the use of water reflects the concerns of Congressional members from water-scarce states. We therefore believe that this legislation adequately addresses any water concerns.

American agriculture MOVEMENT INC.
America Needs Parity!

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(202) 544-5750

Senator J. Bennett Johnston
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510-6150

May 3, 1989

Dear Chairman Johnston:

I am responding to questions submitted for the record relating to the April 20, 1989 legislative hearing on S. 318, the Coal Distribution and Utilization Act.

From Senator McConnell:

1. **Question:** Chairman Johnston's bill has a provision which gives states the power to regulate the use or export of water in the interstate coal slurry pipeline system. In other words, state water law will have primacy in the interstate commerce of coal slurry. In your opinion, does this provision adequately address the water concerns associated with this bill?

Answer: No, we are not satisfied that this provision adequately addresses the concerns over water associated with this bill.

While it is important that the states have the power to regulate the use or export of water in the proposed pipeline system, this leaves unresolved the reasonable fears of agricultural and other water users downstream that water will be diverted upstream in sufficient quantities that there will be insufficient water for their established needs.

We would not like to see a situation in which some state, or some water czar, had to decide whether to provide water for the coal slurry pipeline or for agricultural producers. Once the tremendous investment required for a slurry pipeline was in place, it is doubtful that anyone will have the political courage to say "no" to their demands for preferential treatment for water. This is especially problematic for states during times of budget deficits, when the water can be sold for needed revenue.

We are also concerned with the precedent which would be established by this proposal for the transfer of water from one basin to another. While the quantity of water necessary for this proposal might not be sufficient in itself to permanently impact the availability of water in a given area, once the transfer of water from one basin to another is approved, other projects and proposals will surely follow. We believe it is dangereous precedent to establish and invites similar initiatives which will adveresly impact water resources.

Since there are reasonable alternatives already in place for moving coal which do not require a diversion of scarce water resources, we believe those alternative systems should be used. Those scarce and valuable water resources should be reserved for those industries, such as the production of food and fiber, which require it for their existence.

2. **Question:** Maybe you can address one of the farm group's concerns for me. They are apparently worried that this bill would grant the federal power of eminent domain to private entities, allowing them to force farmers to give up valuable acreage being used for crops and grazing.

Can you comment on this point? Do you think it is a valid concern?

Answer: Yes, we do believe this is a legitimate concern. In fact, it is probably the objection most often expressed by agricultural producers to the coal slurry pipeline proposal.

The federal power of eminent domain is an extraordinary power which is traditionally reserved for matters of great public need. When public roads are being constructed, for example, the general public has a shared need for and benefit from those roads, and therefore the government is justified in using its power of eminent domain to force the sale of private land.

Coal slurry pipelines are different. The companies advocating these projects are private companies who seek to make a profit. They are not planning to build a transportation system available for the public to use; they are constructing a private system which they will operate for a profit. There is simply no justification to use the Congress's power of eminent domain to help private companies undertake a profitable project.

Those proposing to build the pipeline should negotiate with private landowners for the needed right-of-way over land they seek to use. In that manner the individual landowner can evaluate the disruption that would be caused by the pipeline passing through his land, and can negotiate a fair value for allowing that right-of-way Or, if he determines that the pipeline would pose too great of a threat to his land and resources, he can simply refuse to allow the right-of-way.

Our system of private ownership of property is extremely important to farmers and rural citizens, and we should not abrogate those rights traditionally associated with the ownership of private property except in rare cases where the general public good can be demonstrated to be overwhelming. No such showing has been made by the advocates of coal slurry pipelines.

I trust these answers have been helpful to Senator McConnell.

Sincerely,

David Senter
National Director

David Senter

cc: Senator Mitch McConnell

Appendix II

Additional Material Submitted for the Record

STATEMENT FOR THE RECORD OF

ERIC J. FYGI

ACTING GENERAL COUNSEL

U.S. DEPARTMENT OF ENERGY

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

APRIL 20, 1989

Mr. Chairman, Senator McClure, and members of the Committee:

We appreciate the opportunity to provide Department of Energy views on S. 318, a bill cited as the "Coal Distribution and Utilization Act".

The purpose of this bill is to facilitate the development of interstate coal pipeline distribution systems (commonly known as coal slurry pipelines) by granting the Federal power of eminent domain to those systems determined by the Secretary of Energy to be in the national interest. Development of these systems would remain subject to State water laws, interstate compacts, and laws governing the interstate allocation of water.

In making the national interest determination, the Secretary would be required to consider the extent to which the system would meet national coal distribution and utilization needs, enhance competition, provide new market outlets for coal, contribute to national security by expanding the market for domestic coal, reduce coal transportation costs or electricity rates, enhance the reliability of both coal and electricity supplies, and affect the environment compared to other coal transportation and coal-use alternatives.

Before a determination of national interest could be made, the Secretary would notify all affected States and consult with several Federal agencies. For example, the Department of Justice would be required to find that a pipeline system would conform to antitrust laws and the Environmental Protection Agency would be required to find that a system would comply with Federal water discharge requirements and any other applicable Federal environmental laws. The Department of the Interior would have the authority to protect the Federal interest if a pipeline system crosses U.S. coal-bearing lands. Once constructed, a pipeline system would be regulated by the Federal Energy Regulatory Commission under mandatory contract carriage.

In this type of regulatory system, coal transport would occur under normal common carrier standards. A portion of pipeline capacity would be set aside for small and independent coal producers.

The Department of Energy supports enactment of S. 318 because our goal is to use America's skill, wisdom, and abundant energy resources to create an energy secure Nation that has preserved -- and even enhanced -- its environment.

Coal pipelines could provide an alternative and competitive mode of transporting coal. There is an existing coal pipeline in the West. We would support extending this proven technology to other parts of the country. This would have the potential, through increased competition, of decreasing coal transportation costs significantly. Our national security, specifically energy security, also could be imprcved by the construction of these pipeline systems because they could increase domestic coal consumption and decrease reliance on imported petroleum.

One of the primary concerns with coal slurry legislation introduced in previous Congresses has been the issue of the applicability of State water laws. The decision to determine whether the use of water in a coal pipeline would affect adversely water use in a State should lie with each State. S. 318 wisely recognizes this by ensuring that State law will govern claims for water for the coal pipelines.

Under the bill, after an applicant has received a positive national interest determination from the Secretary, the applicant would have the Federal power of eminent domain to acquire the rights-of-way for the pipeline systems. We support granting this Federal power only after good faith efforts in private negotiations have proved to be unsuccessful.

In preparing for our future energy needs, we must acknowledge that the state of our economy and our energy security depend in part on the availability of adequate supplies of energy at reasonable prices. At the same time, we must seek a balance among energy needs and concerns for the overall economy, environmental quality, free and fair competition, and manageable budgets. S. 318 is a good example of a governmental action that may have a significant effect on our Nation's energy problems; therefore, the Department of Energy supports enactment of S. 318.

Statement of

Irving Leibson
Chairman, Coal and Slurry Technology Association

Submitted to the
Committee on Energy and Natural Resources
U. S. Senate

S-318: The Coal Distribution and Utilization Act of 1989

April 20, 1989

Introductory Statement

Mr. Chairman and members of the Committee, I am Irving Leibson, Chairman of the Coal & Slurry Technology Association. This association, headquartered in Washington, D.C., includes domestic and foreign companies and individuals interested in the development and application of coal and slurry technologies to pipeline transport, industrial processes, and fuel use.

Of principal interest to our membership are coal slurry technologies. Together with the Department of Energy, our association cosponsors an annual international technical conference on coal and slurry technologies. These technologies include the processing of coal to transform it from a bulk, unclean material into a uniform clean slurry usable as a fuel at the mine site or for long distance transport through a pipeline.

One coal slurry pipeline is currently operating in the United States moving intrastate 5 million tons per year of coal from Black Mesa in Arizona to a power plant 273 miles away. This pipeline which has been operating successfully for over 19 years, formerly owned by a subsidiary of the Southern Pacific Railroad, has recently been purchased by Williams Technologies, Inc.

Coal slurry transport over long distances in large volumes through pipelines is very cost competitive when compared to rail transport. Opposition of the railroads to coal slurry pipelines has been intense. Yet, competition in coal transportation in a free market on a fair basis is vital to the economic strength of the country.

It is of great importance that federal eminent domain (as embodied in S-318) be granted to coal slurry pipelines to facilitate the development and construction of coal slurry pipeline projects in the United States. The use of litigation to secure rights-of-ways for coal slurry pipelines is extremely costly and time consuming. For coal pipelines in areas of the nation served by non-landgrant railroads, not even this approach is possible because the railroads own the underlying land in fee simple.

The right of federal eminent domain was granted to interstate natural gas pipelines in 1947, and to interstate petroleum and petroleum product pipelines in 1941. The grant of federal eminent domain authority to the land grant railroads (Santa Fe, Union Pacific, and Burlington Northern) was given in the 1860's.

Interstate slurry pipelines can be developed and built without any federal financial assistance. Federal right of eminent domain legislation is needed to facilitate these projects. My detailed testimony, which is submitted for the record, sets forth:

1. The details of the technology involved;

2. How the competition provided by coal slurry pipelines will benefit coal consumers economically;

3. How coal pipeline transport will provide a competitive alternative to coal rail rates;

4. The impact of pipeline competition on the railroads and railroad workers;

5. The importance of coal pipelines in protecting our energy security;

6. How coal pipelines will assist U.S. steam coal to compete abroad;

7. The legislative protection of water rights and water use;

8. The precedent and need for federal eminent domain legislation; and

9. Background information concerning the historical development of slurry projects worldwide as covered in an address I gave to the Twelfth International Slurry Conference in New Orleans, Louisiana on April 1, 1987.

In closing, I urge you to support the passage of federal eminent domain legislation for coal slurry pipelines (as embodied in S-318) in the national interest.

1. The Technology Background

The commitment to long-distance coal slurry preparation and pipeline transport began over 30 years ago and moved over the commercial threshold in the late 1950's. Since then, two pipelines--Cadiz (1957) an intrastate pipeline and Black Mesa which is essentially an intrastate pipeline since 98 plus percent of the pipeline is in Arizona (1970)--have been built to carry mixtures of pulverized coal and water from mines to domestic power plants. These projects spurred by two energy crises, have led to accelerated improvements in materials handling, advanced fuel mixtures, and new coal cleaning technology associated with slurry preparation and pipeline transport.

The two long-distance coal pipelines that have operated in the United States have carried equal mixtures (by weight) of pulverized coal and water. However, water is not the only medium which can be used for transportation. Various companies and researchers have considered using methanol, liquefied carbon dioxide and petroleum fractions. In at least one proposed pipeline project, the carbon dioxide, after separation, is expected to be used in tertiary oil recovery processes.

Even where water is the medium, conventional 50-50 mixtures of coal and water may not be the only mixes that can be transported. A 70% coal 30% water slurry is to be used in a 4 million ton per year 162 mile long pipeline being built by the USSR in Siberia. The Russians expect to burn the slurry directly in boilers for electricity generation without the need to remove any water prior to combustion. Further details of the technologies involved are given in my paper titled: "Overview Address" presented at the Twelfth International Slurry Technology Conference of the Coal and Slurry Technology Association, April 1, 1987, in New Orleans, Louisiana.

2. The Competition Provided by Coal Slurry Pipelines Will Benefit Consumers Economically

Full use of America's abundant coal reserves requires efficient, reasonably priced transportation services. Railroads now carry about two out of every three tons of coal produced in the United States to utility and industrial plants and to ports engaged in shipping America's coal to export market. Railroads are able to exert great market power over these coal routes because much of the coal transported by rail is captive to a single rail carrier for most, or all, of the movement from mine to destination.

Because of this, rates charged by the carriers often are unreasonably high, a circumstance that can be remedied by enabling coal pipelines to compete with railroads for coal shipments. Market forces resulting from competition will stimulate carriers to increase efficiency and to price their services more reasonably.

A successful long-distance intrastate coal pipeline in Ohio (Cadiz), which carried 1 1/4 million tons per year of coal in coal slurry form reliably to Cleveland Electric Illuminating Company's (CEI) Eastlake plant at a rate that was one-third less than the per ton rail cost (about $2.00 versus $3.50), was mothballed after six years of operation. The five railroads which supplied 5 million tons per year of coal to all of CEI's plants offered to cut their rates by about $1 per ton when they learned of plans by Texas Eastern and Consolidation Coal Company to construct a 12MM ton per year coal slurry pipeline to serve the West Virginia, New Jersey, New York areas. The condition imposed for granting of the reduced freight rate was that the Cadiz line be shut down. In addition, the railroads proposed to haul the utility's coal on more efficient dedicated "unit trains," not multi-commodity trains as before.
Thus, competition from a coal slurry pipeline produced significant savings to consumers in electricity costs and also generated increased efficiency by the railroads in instituting the use of unit trains for coal shipments.

A more recent event demonstrates the impact on rail rates of further potential competition from slurry pipelines. Chicago North Western Transportation Company and Union Pacific slashed their rates to underbid the ETSI pipeline project in contract negotiations with Arkansas Power & Light Company, to move 11 million tons per year of coal. This contract will result in a $16.4 billion savings to Arkansas electricity consumers over a 20 year period.

Transportation rates paid by utilities now account for about one-third of the delivered price of coal on the average, and often amount to one-half or more of coal's delivered price. For some rural electric cooperative systems, the expense of coal transportation is second only to the cost of powerplant financing.

It would be ideal if rail rates could be assessed on the basis of rail costs. Rail costs, however, are not available. Nevertheless, the Bureau of Labor Statistics (BLS) price indices serve as a good indicator of the cushion that market dominance has provided the railroads. According to the BLS, the price index for all rail freight shipment rates increased from a base of 100.0 in 1969 to 374.2 in 1985. That means that goods that cost $100 to ship 16 years ago now cost $374.20. The rail coal freight index rose even faster, from 100.0 in 1969 to 403.2 in 1985. By contrast, the BLS producer price index for all commodities rose to 308.7, almost 100 points below the increase in rail coal freight rates for the same period.

3. Coal Pipeline Transport Will Provide a Competitive Alternative to Coal Rail Rates

There is no comparable BLS index for coal slurry pipeline rates, but there are good general measures for assessing rail and pipeline costs. Historically, coal pipelines have proven to be cost effective and reliable modes of transporting domestic coal in two basically intrastate systems in Ohio and Arizona.

The Cadiz pipeline, mentioned earlier, which carried about one-fourth of the coal required by the utility, did so at a very competitive rate -- $2.00 per ton compared to $3.50 per ton charged by the railroads for the remainder of the coal required by the Cleveland utility. The Black Mesa Pipeline -- built and operated by an affiliate of the Southern Pacific Railroad in 1970 -- is delivering coal today, efficiently, reliably and at an extremely competitive rate after 19 years of operation. The pipeline was built by the railroad subsidiary because the cost of building a railroad line across the rugged terrain in that part of Arizona was prohibitive.

The economics of proposed coal pipeline systems appears to have withstood the test of a recent assessment by the Energy Information Administration (EIA) published in 1985 (Coal Slurry

Pipelines: Impact on Coal Markets, Energy Information Administration, (DOE/EIA-0468), April 1985). The rate evaluation by the energy agency was undertaken for the following representative segments of proposed routes for four pipelines: ETSI (Wyoming to Texas); Allen-Warner (Utah to Nevada); Coalstream (West Virginia to North Florida); and Virginia (Virginia to Virginia). Under their standard rate/medium demand case, the report found that by 1995, the near mid-point of the assumed 25-year lifespan of the projects, the four pipeline systems could carry a conventional mixture of pulverized coal and water from mines to power plants $12 to $20 per ton more cheaply than rail systems.

4. The Impact of Pipeline Competition on the Railroads and Railroad Workers

For the foreseeable future, the vast majority of domestic coal shipments will be made by rail. What has prompted the railroads to strenuously oppose coal pipelines is their belief that this alternative transport mode will take from them some significant portion of their coal hauling traffic. This argument has been the cornerstone of railroad and rail labor lobbying with Congress.

The railroads contend that coal pipelines will lead to a dramatic drop in railroad revenues and massive railroad employee job loss. Notwithstanding that Association of American Railroad statistics show that railroad employment in Class I railroads has declined by 317,756, a decrease of 56 percent since 1970--a period when no coal pipelines were built--it is alleged that coal pipelines will syphon off coal hauling traffic, creating earnings problems for the railroads.

This allegation is without merit. Seventy-five percent of the market the railroads now enjoy is under long-term contracts, protecting them from any massive, sudden loss of the market from competitors. Moreover, because no pipelines could be engineered, permitted and constructed in less than five years, railroads would have a long lead time in which to transition their systems and develop additional business. Furthermore, according to DOE forecasts, coal production is projected to rise to nearly 1.1 billion tons of coal by the year 1995. This will provide a large net increase in business for the railroads over and above whatever is taken away by coal pipelines.

If the four pipelines estimated by EIA in their study had gone into operation by 1995, they would carry about 47 million tons of coal each year. This leaves a rounded 1 billion tons annually to be carried by existing coal transportation.

Because railroads would continue to haul the bulk of coal, EIA found that should the four pipelines be built and operate at the agency's projected rates, railroad revenues would not be adversely affected and coal users would benefit:

> "...Railroad revenues from coal carriage would still be almost 60 percent higher and railroad ton-miles nearly 30 percent higher in 1995 than in 1984..." and "Coal users could realize savings of between $200 million and $1 billion in 1995..." EIA, Coal Slurry Pipelines, p. x.

The railroads have disputed this conclusion drawn by EIA on the basis that railroad coal revenues between 1984 and 1986 have declined, in part due to a drop in tonnage. While the 1984 to 1986 decline is a measure of short-run conditions, it is not representative of what government analysts expect to happen long term. The National Coal Association's (NCA) forecasts and the Department of Energy's projections have both maintained their long term growth forecast to the year 2000 at nearly 1.2 billion tons annually.

The 1.1 billion tons of coal production in 1995 currently projected by DOE is 230 million tons more than in 1984, the base year of the EIA study. Relatively low oil and natural gas prices are not expected to dampen demand for coal by electric utilities, which will rise by more than 200 million tons between 1984 and 1995. And although the overall market for coal in the industrial sector will remain relatively small, recent sales of fluidized bed, coal-fired boilers suggest that industrial demand will rise to 109 million tons by the year 2000, reversing the decline and uncertainty experienced in the industrial market for coal over the past two and a half decades.

We conclude that the long-run demand for coal continues to be strong enough to support EIA's estimate that the shift of 47 million tons of coal from rail to pipelines would still allow substantial growth in railroad coal revenues. The short-run decline often noted by the railroads is over. According to a July 7th 1987 article in the Journal of Commerce, it is not only over, railroad recovery is ahead of schedule, as the article title "Rail Freight Traffic Ahead of Forecasts" suggests.

Goldman Sachs conducted a study of 1986 operating profit margins of the railroad operations (not including non railroad operations) of six railroads which was reported in the August 29, 1987 issue of Economist magazine. Operating profit margins varied from 5 percent for Santa Fe Southern Pacific to 20 percent for Norfolk Southern and for Union Pacific as shown below:

Railroad Operations Only	1986 Operating Profit Margin
Santa Fe Southern Pacific	5
CNW	10
CSX	12
Burlington Northern	13
Norfolk Southern	20
Union Pacific	20

As coal usage increases during the next ten years, we can expect further improvements in railroad profit margins with plenty of room for coal slurry pipeline transport at the anticipated volumes.

5. The Importance of Coal Pipelines in Protecting our Energy Security

It is hard to watch the continuing turmoil in the Mideast without remembering the havoc during the last decade due to reliance on foreign oil. Of course, our position today is stronger than in the early 1970's, primarily due to new oil supplies from Mexico, the North Sea and developing countries, resulting for the short-run at least in less dependence on Middle East sources of oil supplies. A recent EIA forecast of U.S. dependence on imported petroleum products, predicts a drastic increase in our imports in the next decade. EIA said net oil imports may account for more than half of the nations oil requirements by 1994, up from 37 percent in 1988, and at the end of the century the figures could be 59 percent.

So long as there is excess capacity in non-Persian Gulf reserves, these countries can meet our needs. But these needs have to be measured against the production of these countries 5 or 10 years from now.

Looking at the problem as it stretches out for the rest of this century, modest economic growth is expected to raise oil consumption, while non-Persian Gulf reserves will be depleted and production will fall. Under this scenario, dependence on Mideast oil would rise.

With Middle East strife continuing and growing economic instability in Latin America, the United States must have as a cornerstone of its energy policy a lessening of its dependence on foreign fuel supplies, and beyond this, developing the resources we have as a stable source of energy for ourselves and our allies. Among the more important margins of safety are the development of alternative coal mixtures and fuels to replace dependency on both non-Persian Gulf and Persian Gulf oil in industrial and power applications.

6. How Coal Pipelines will Assist U.S. Steam Coal to Compete Abroad

A central aspect of our foreign policy is to assist industrialized nations in their attempts to reduce their dependence on Middle Eastern crude oil. U.S. coal is the key to our ability to influence the international energy supply patterns.

Following the two international crude oil supply interruptions of the 1970's, the industrialized nations of Western Europe and the Pacific Rim began a process of diversifying their primary sources of fuel for steam generation away from Middle Eastern crude oil. As a result, the United States was able to increase its steam coal exports from 14 million tons in 1979 to 45 million tons by 1981. Forecasts for U.S. exports were bullish, predicting up to 200 million tons of exports by the year 2000. Meanwhile, other energy resources were also competing for this new market, including Soviet natural gas and coal from Canada, China, Poland, South Africa, Australia, and, most recently, Colombia.

By 1982, the U.S. role in coal exports began to diminish and the long-term outlook for our coal exports were down 21 million tons, cutting the 1981 total essentially in half. This represented a decline in terms of both market share and absolute tonnage while world coal exports were increasing dramatically in response to the expansion in world coal demand during the 1980 to 1984 period. Competing aggressively for this new market, Australia, South Africa and Poland increased their share, surpassing the U.S. in steam coal exports (Outlook for U.S. Coal Imports -- DOE/EIA-0483 -- pp. vii and 9).

DOE expects world steam coal trade to continue to expand, from 163 million short tons in 1984 to 225 million in 1990, a 38 percent increase. However, U.S. exports are expected to gain only 5 million short tons out of the 62 million short ton increase, resulting in another drop in world market share from 16 percent in 1984 to 13.8 percent in 1990. Unless turned around, U.S. competitors will be the clear winners, increasing their coal exports by 42 percent as well as gaining 86.2 percent of the world market share (Annual Outlook for U.S. Coal, 1986 -- DOE/EIA-0333,86 --).

There are of course numerous important factors that undermine the competitive position of American coal producers in the international market today. Certainly, the exchange rate of the dollar against certain foreign currencies is still important. The bold search for foreign exchange by some international competitors, who directly and indirectly subsidize their coal sectors, is another. A third cause is the high U.S. inland rail rates charged for hauling coal by railroads.

The Ambassador of Italy was so concerned about high rail rates that he wrote U.S. Representatives in 1983 of his great interest in coal pipeline legislation, which he felt would introduce competition for coal transportation to the ports.

Appearing before a Maryland legislative committee hearing on a state coal pipeline bill, a western Maryland producer testified in 1984 that the state's coal producing region was being locked out of the European market, citing the fact that it cost $14.65 per ton to ship coal from Cumberland, Maryland to the port of Baltimore, compared to as low as $7.00 per ton from Baltimore to Europe. These high rail rates seriously hinder the efforts of U.S. coal producers to hold and increase international share of market for U.S. coal.

7. The Legislative Protection of Water Rights and Water Use

The most controversial aspect of interstate coal pipelines is the fact that most coal pipelines that are being considered today will use water as the medium of transportation. The allocation and use of water is an important issue in every region of our nation. The issue is of particular importance, obviously, in those regions of our nation where water is relatively scarce, such as certain areas of the west and southwest, and in those states where water may be potentially discharged.

a. Legislation Protects a State's Right to Make Water Allocation Decisions

As proponents of coal pipelines, we strongly support Section 5 of S-318 which provides that decisions concerning the allocation and use of water shall be made pursuant to state substantive and procedural law. We support these provisions, which provide that federal eminent domain authority may not be used to acquire any right to take, use, dispose of, or develop water. This language was carefully crafted by western senators and congressmen and water law experts who testified before congressional hearings and reflects their concerns.

Pipeline companies understand that they will be required to carry the burden of demonstrating the existence both physically and legally of adequate water supplies. They will have to prove that pipeline use of water can be made without injuring the rights or impairing the ability of state water agencies to plan and regulate the use of their water supplies.

States should be assured that the water provisions of S-318 will be effective. These (1) clarify that federal eminent domain authority may not be used to acquire water rights; (2) provide that those terms and conditions that a state includes in a water permit shall be enforceable despite the fact that the water moves in interstate commerce; (3) clarify that nothing in S-318 shall be construed to override or modify state water law or any provision of an interstate water compact; and (4) provide that all water allocated to an interstate coal pipeline that is determined to be in the national interest must be allocated pursuant to state substantive and procedural law.

b. The Legislation Requires Federal, State and Local Standards for Water Discharge to be Met

Coal-water fuels require no discharge of water because they are direct-fired into a boiler. Using traditional technology in the Black Mesa pipeline, no water is discharged because water is used in the cooling system of the power plant. However, to the extent water used in coal water slurry is discharged prior to combustion, it is subject to federal, state and local water pollution laws under the provisions of S-318. The Clean Water Act, formally called the Federal Water Pollution Control Act, establishes minimum quality standards and prohibits the discharge of any water which does not meet these standards. Before water can be discharged, permits must be obtained and permit holders must prove that all applicable standards will be met. The Act also authorizes the Administrator of the Environmental Protection Agency to delegate to states certain aspects of water pollution control. Consequently, states have enacted water pollution laws and established agencies to administer them.

c. The Environmental Impact Statement on Water Discharge by ETSI

An example of the application of state and federal water pollution control law to the water used in coal pipelines is the ETSI Pipeline Project. A final Environmental Impact Statement (EIS) was issued for the proposed pipeline, as required by the National Environmental Policy Act. It examined the environmental effects of discharging the water used in the slurry pipeline and concluded:

(1) Water discharged into freshwater streams or rivers will not have impacts on the beneficial uses of the streams or rivers;

(2) Water discharge will not affect the aquatic biology because the discharge must meet applicable state water quality standards and National Pollutant Discharge Elimination System standards set by EPA;

(3) Projected levels of metals after treatment of the water would be less than all EPA Primary Drinking Water Standards;

(4) Water treatment facilities will reduce the levels of total dissolved solids and sulfates to state standards.

The costs of the facilities to treat water used in a coal pipeline in order to comply with state and federal water pollution control laws will be borne by the pipeline company, and are included in the construction costs. It is the conclusion of water disposal experts appearing before many international water conferences that, while chemical interactions do occur between water and coal under simulated conditions of coal pipelines, clean-up can be achieved with technological and economic ease. The variation of slurry water characteristics is consistent with variation in other industrial wastewaters and with municipal wastewaters and is recognized by personnel in the pollution control profession.

8. The Precedent and Need for Federal Eminent Domain Legislation

Interstate coal pipelines can be built without Federal financial assistance. Interstate coal pipelines cannot, however, be built without long and costly litigation to secure rights-of-ways unless federal legislation is enacted to provide the federal right of eminent domain to interstate coal pipelines. Except for the special case of Black Mesa, no major interstate coal slurry pipelines have been built in this nation during the 27 years since federal eminent domain legislation was first submitted to Congress in 1962.

a. State Eminent Domain

Faced with active railroad opposition, state legislatures have difficulty dealing effectively with the issue of eminent domain for coal pipelines in their usual abbreviated sessions, particularly when the fundamental issues of providing essential state services are today so difficult and time consuming.

These practical problems are especially relevant in those states through which pipelines must be built, but in which coal is neither picked up nor delivered. In fact, such states may encounter legal difficulties in identifying benefits to their citizens that would support the grant of state eminent domain authority to such coal pipelines. Similar experiences led to the amendment of the Natural Gas Act in 1947 to grant the Federal power of eminent domain to interstate gas pipelines.

b. The ETSI Story

The experiences of the ETSI Pipeline Project paint a clear picture of the difficulties involved in building an interstate coal pipeline without federal eminent domain. ETSI's right-of-way acquisition for the 1386-mile main coal pipeline began in 1974. ETSI found that the greatest difficulty encountered was in securing permission to cross under the various east-west railroad routes which had to be crossed in the southeasterly pipeline routing. ETSI officials initiated contacts with the various railroads involved in an attempt to negotiate easements or licenses to cross under the track beds located across the proposed route. Ultimately, the ETSI representatives were refused crossing permits in every instance.

Faced with railroad refusals to negotiate and federal requirements that preparation of an environmental impact statement could not be undertaken until ETSI had demonstrated that railway crossings could be secured, ETSI undertook what was termed the "window program" for obtaining rights-of-way from the railroads.

Extensive title searches were made of the railroad land grants that lay across the proposed route. Records indicated that all the railroads ETSI crossed were built under the Federal

Railroad Acts of 1862 and 1864. ETSI's land division identified crossing points at or near the pipeline route where the land in question was held as an easement under the Railroad Land Grant Acts rather than in fee ownership. ETSI then began an extensive process of legally challenging the authority of the railroads to deny crossing requests, instituting 65 individual law suits against the railroads to establish ETSI's rights.

ETSI's window program was completely successful at the trial court level as well as in appellate review by both the Eighth and Tenth Federal Circuit Courts of Appeal and the Oklahoma Supreme Court. See Energy Transportation Systems, Inc. v. Union Pacific Railroad Co., 606 F. 2d 934 (10th Cir. 1979); and Energy Transportation Systems, Inc. v. Kansas City Southern Railroad, 638 F. 2d 459 (Okla. 1981). Also, ETSI's final environmental impact statement issued by the Bureau of Land Management found the ETSI coal pipeline to be an environmentally sound way to transport coal.

Although this costly and time consuming litigation enabled ETSI to obtain rights-of-way to cross under specific rail lines, it had to realign the pipeline so that it would cross at the windows opened by the courts. This legal process added at least an additional $50 million to projected construction costs but more important was the several years of delay and resultant uncertainty. Based on this record of obstruction, the ETSI partners sued the major western railroad for $8 billion dollars in treble damages under the Sherman Anti-Trust Act.

Out of court settlements* with ETSI by Burlington Northern, Union Pacific Railroad Co., Missouri Pacific Railroad Co., Kansas City Southern Railway Co. and Chicago & Northwestern Transportation Co. amount to approximately $285 million. A federal jury recently awarded the owners of ETSI a total of $1.035 billion in damages from the final defendant, the Santa Fe Southern Pacific Corp. Motions are pending in Federal Court, but no judgment has yet been entered; Santa Fe is expected to appeal any decision. The jury's verdict came on the heels of a partial instructed verdict delivered by the judge in the case in favor of the pipeline owners. The judge decided that the foregoing railroads, including Santa Fe Southern Pacific, had conspired or agreed to delay or stop the ETSI coal slurry pipeline project.

After $150 million spent by the ETSI partners, and millions more in unrealized earnings, it is clear that the window program approach is not practical as a business approach in developing coal slurry pipeline projects. For coal pipelines

*Reported in the McGraw Hill Clean Coal/Synfuels Newsletter dated March 20, 1989.

in other areas of this nation, the window program approach is not possible because the railroads own the underlying land in fee. Furthermore, uncertainties in project timing and execution created by being unable to tie down rights of way make it exceedingly difficult to obtain binding commitments in marketing the coal to users.

c. Legislative Precedence

As I indicated previously, similar difficulties led to the amendment of the Natural Gas Act in 1947 to grant federal eminent domain authority to interstate natural gas pipelines; the enactment of the Cole Act in 1941 to grant federal eminent domain authority to several interstate petroleum products pipelines that transport petroleum products consumed in the Washington, D.C. area; the grant of federal eminent domain authority to the land grant railroads (Santa Fe, Union Pacific and Burlington Northern) in the 1860's; the grant of federal eminent domain authority to interstate bridge companies and to certain interstate electric transmission projects.

The enactment of federal eminent domain legislation in each of these instances allowed the development of interstate energy and transportation facilities that have provided enormous benefits to our nation and literally have changed the face of our country. The adoption of this federal eminent domain legislation will enable the nation to realize the substantial benefits of interstate coal pipeline systems.

CONCLUSION

Mr. Chairman, the case for interstate coal slurry pipelines is compelling. Interstate coal slurry pipelines will provide significant energy and economic benefits for the nation. But the development of these interstate systems needs to be facilitated by workable federal eminent domain legislation, such as S-318. We encourage the enactment of this legislation expeditiously in order that the benefits of long-distance coal pipelines can be realized.

STATEMENT OF THE AMERICAN FARM BUREAU FEDERATION TO THE ENERGY AND NATURAL RESOURCES COMMITTEE, UNITED STATES SENATE WITH REGARD TO S. 318, THE NATIONAL DISTRUBUTION AND UTILIZATION OF COAL ACT.

Presented by
George L. Berg, Jr.
Assistant Director, National Affairs Division

April 20, 1989

On behalf of the American Farm Bureau Federation, I am pleased to comment on S. 318, the National Distribution and Utilization of Coal Act. Farm Bureau is the nation's largest general farm organization representing more than 3.6 million member families in 49 states and Puerto Rico.

As you know, Mr. Chairman, Farm Bureau has testified many times before on the subject of coal slurry pipeline legislation. S. 318 is very similar to those earlier legislative proposals which the Congress has seen fit to reject on several occasions. My statement today will be similar to what we said in earlier testimony. The stated purpose of the legislation is to facilitate the development of coal pipelines by granting the federal power of eminent domain to those coal pipelines that are determined to be in the national interest.

Farm Bureau policy, as adopted by a resolution last January at our annual meeting in San Antonio, Texas, is stated as follows:

> "Federal legislation dealing with coal slurry pipelines should:
>
> "(1) Respect state water laws and protect such laws from threats of nationalization under the Interstate Commerce Clause of the U. S. Constitution;
>
> "(2) Respect state laws concerning property rights and eminent domain procedures;
>
> "(3) Require payments to owners for damages to their property; and
>
> "(4) Provide that a state which has a water compact with another state shall receive credit for the amount of water that is transported to the other state in a coal slurry pipeline and ensure:
>
> > "(a) that the use and appropriation of water for all interstate coal slurry pipelines, not just those that use the right of federal eminent domain, be made pursuant to the law of the state where the diversion takes place;

"(b) that if a state denies a water permit or exercises conditions on such a permit or authorization, up to and including termination, this exercise will not be prohibited as an unreasonable burden on interstate commerce;

"(c) that federal reserved water can only be used in a coal slurry pipeline if state law is fully complied with; and

"(d) that nothing in the law shall alter in any way any provision of state law or interstate compact."

Our policy further opposes legislation which grants the right of federal eminent domain to any additional entity except in crossing property controlled by another carrier which already has federal eminent domain authority.

Farm Bureau continues to believe there is no real need for coal slurry pipelines. It is doubtful whether the development of a coal slurry pipeline would result in the production of new coal. However, the development of such a pipeline would obviously result in the diversion of coal from other modes of transportation -- railroads, trucks and barges. The existing transportation industry has proven its ability to move the quantities of coal that will be produced over the next 25 or 30 years. Therefore, given the fact that slurry pipelines are not necessary for competition, it is difficult to see where the coal slurry promoters can justify any case for the granting of eminent domain power.

In addition to our concerns with respect to transportation, farmers and other agricultural interests located mainly in the Northern plains and intermittent states are likewise concerned as to whether the diversion of water supplies for use in coal slurry pipeline transportation will adversely affect agricultural production. In some areas of minimal rainfall that correspond to areas of abundant western coal reserves, the allocation of water for the various competing uses is especially sensitive. Many agricultural producers have been in the midst of one of the most disastrous water shortages in years. This is hardly the time for Congress to consider legislation that could divert billions of gallons of water annually from the semi-arid Northern Plains in order to transport coal. However, this issue is best resolved through negotiations at the local and state level. Historically, it has been the role of the state, not the federal government, to determine the best use for the state's water resources.

It is our understanding that the Energy Transportation System project (ETSI), the most significant pipeline project in the past few years, acquired easements for the rights-of-way on nearly 2,400 parcels of land stretching from Wyoming to Arkansas. Only 14 parcels of land were obtained through the exercise of eminent domain. This would hardly justify the enactment of federal legislation with respect to eminent domain procedures.

Farm Bureau is also concerned about the impact coal slurry pipelines will have on rural communities and rural development. If coal pipelines are permitted, some railroads will have no choice but to reduce service or abandon many of their rail lines because of unprofitability. Whenever a railroad abandons a branchline, there are several companion effects that adversely impact rural communities. Rail abandonment can mean loss of current employment, loss of income, loss of investment, deterioration of rural roads and bridges, relocation of facilities and increased taxes. It is essential to maintain a strong reliable transportation system, particularly a strong and viable rail system for the shipment of grain and other agricultural commodities. Therefore, we oppose any action by Congress which would, in the long run, weaken or jeopardize the current rail transportation system.

Mr. Chairman, while the coal slurry pipeline legislation pending before the Senate this year has appeared to resolve some of agriculture's concerns, there is no denying the fact that if the legislation is enacted, farmers will bear the burden, yet realize no benefits. The price for coal slurry pipelines will be paid by rural America. It is our land that will be taken; it is our water that will be diverted; it is our rail transportation that will go up in price; and it is our property that will deteriorate. In return for this, we get nothing.

In summary, public policy decisions that involve coal slurry pipelines should be based on a careful evaluation of each project. No one can say how many proposed coal slurry pipelines projects will be built. Furthermore, the extent and form of the pipeline project, the number of states through which each pipeline would pass, the rail coal traffic patterns, and the projected annual revenues for transportation can reasonably be expected to vary from situation to situation. For these reasons, and until the impact of coal slurry pipelines on agricultural production and rural development can be properly evaluated, Farm Bureau will continue to oppose granting the federal power of eminent domain to coal slurry pipelines.

Mr. Chairman, we appreciate the opportunity to present Farm Bureau's views on S. 318, the National Distribution and Utilization of coal Act.

Snamprogetti USA Inc.
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LTR 2074
April 17, 1989

The Honorable Senator
J. Bennett Johnston
Chairman, Committee on Energy
and Natural Resources
United States Senate
Washington, D.C. 20510-6150

Dear Senator Johnston,

Mr. Stuart Serkin, Executive Director of the Coal & Slurry Technology Association, informed Snamprogetti that the Senate Committee on Energy and Natural Resources had scheduled a hearing on April 20, 1989, for "The Coal Distribution and Utilization Act," S.318, and that it would have liked Mr. R.M. Braca to appear as a witness at the hearing.

Mr. Braca, unfortunately, must decline this opportunity to testify on behalf of coal pipelines as he is in Europe on business the week of April 17-21, but he appreciates the opportunity to submit his written testimony to the Committee to be included as part of the Senate S.318 hearing record.

Please advise if we may be of further assistance to you and the Committee on Energy and Natural Resources in your efforts with this important legislation.

Sincerely yours,

Merry K. Pantano
Public Relations Manager

Enclosures (2 copies)
PS 06/1

Statement of

R.M. Braca, P.E.
President
Snamprogetti USA Inc.
666 Fifth Avenue
New York, New York 10103

Prepared for

The Committee on Energy and Natural Resources
Hearing on S.318
"The Coal Distribution and Utilization Act"
April 20, 1989

U.S. Senate
Washington, D.C.

Mr. Chairman and members of the Committee, my name is Mike Braca. I am the President of Snamprogetti USA Inc. of New York, representing on the North American market Snamprogetti S.p.A. of Milan, Italy, a research and engineering company within the Italian energy group, ENI. I am pleased to have the opportunity today to tell you about our group's activities in the fields of coal-water fuels and related coal pipelines where we are heavily engaged in and committed to the development of the relevant technologies and their commercial applications. As part of this commitment, Snamprogetti has been a long-standing member of the Coal and Slurry Technology Association in Washington, D.C., and is participating in the U.S.-Italy Cooperative Project on Coal-Water Mixtures. The project is conducted under the provisions of Annex I to the "Memorandum of Understanding between the Government of the United States of America and the Italian Republic concerning Energy Research and Development Cooperation," signed in Rome on December 5, 1985. Under this program a new agreement was signed in 1988 between the U.S. Department of Energy and the Italian Government, which sets up a collaborative program to prepare and conduct combustion tests on 20,000 tons of "superclean" coal-water fuel mixtures based on U.S. coals. The tests will be done both in Italy and the U.S.A.

It is interesting to note why a coal-importing country such as Italy should have become so interested in developing new coal technologies. In the face of rapidly rising oil prices in the 1970's, it was anticipated that there would be a fourfold increase of coal imports into Italy, which would soon strain the existing infrastructure's capacity to receive, transport inland and store the additional amounts of coal that would be consumed by the industrial and utility sectors. There was the additional problem at the end of the coal supply chain, of converting a large number of boilers and furnaces from oil- to coal-firing.

After many studies, the solution proposed to these potential problems was to convert the coal into coal-water fuel (CWF), which could utilize much of the existing pipeline and storage facilities currently being used for fuel oil. This would also minimize the cost and space requirements of converting power plant boilers and other fired equipment from oil to coal and permit the firing of oil or CWF interchangeably as alternative fuels.

With this concept in mind, our engineers proceeded with the development and testing of a coal-water slurry technology, later designated as REOCARB, whose CWF product would meet several major criteria:

1. It should be directly combustible as a liquid fuel, with a high coal concentration, in the order of 65 to 75% dry coal content, and a proper particle size distribution to ensure good atomization at the burners and a high combustion efficiency;

2. It should be stable so that it can be stored in tankage for long periods and be shipped in tank trucks, rail tank cars and barges without the coal settling out;

3. It should be transportable in pipelines over long distances, with reasonable pumping costs and without the risk of plugging the system during flow interruptions; and

4. The total cost of CWF production and transportation to the end user should be competitive with alternative fuels systems involving dry coal or fuel oil.

Importantly, the "concentrated" coal-water slurry or CWF concept differs somewhat from the "conventional" coal-water slurry technology as currently practised in Arizona with the Black Mesa coal pipeline. The latter system operates on the principle of transporting and delivering a lower concentration slurry, typically 50% coal and 50% water, that requires at the pipeline's destination a "dewatering" step, i.e., a separation of excess water. This then involves the further steps of water cleanup and disposal and a final grinding of the dried coal to reach the particle size specification for pulverized coal (which is today the most common form of coal being fired in large power plants). All of these steps can be avoided at the destination when transporting CWF or "concentrated" slurry, with the added advantages that preparing and transporting the CWF requires less than half the amounts of water and of pumping power as does the "conventional" slurry.

The results of Snamprogetti's R&D work with the CWF concept were successfully demonstrated on the pilot plant and full scale, closed-loop pump and pipeline facilities at Fano in Italy. The Reocarb CWF produced and tested had a typical composition of 70% coal, 29.5% water and 0.5% dispersant chemicals. The product was completely stable in storage for periods of more than one month without the use of re-mixing devices. Tests also showed that commercially available pumping equipment can be used for CWF pipeline systems. Quantities of CWF produced from a wide variety of internationally traded coals have been shipped from Fano and used in combustion tests conducted at test facilities in the USA (Combustion Engineering and Babcock & Wilcox), the United Kingdom (Peabody-Holmes), Austria (Dumag), and Italy (ENEL and ENICHEM).

With this background, Snamprogetti undertook the design and construction of two 100,000 metric tons/year CWF production plants in Italy, at Livorno (Leghorn) and Porto Torres, Sardinia. These plants have been in commercial operation since 1985/86. The Livorno plant supplies CWF to the local industrial sector and Porto Torres supplies a 300 ton/hr. steam boiler on site. Other CWF plants are being designed for Italian locations, with capacities up to 500,000 metric tons/yr.

A notable event for the CWF technology was the award to Snamprogetti of the design and supply of a Reocarb plant and pipeline facility for the U.S.S.R.'s commercial prototype CWF project in Siberia. When completed in 1989, it will have a capacity of over 5,000,000 short tons/year of coal-water fuel containing 3,300,000 short tons/year of dry coal. The production plant is located at the Kuzbass mine site area of Belovo. The CWF product will be pumped through a 20" diameter underground pipeline over a distance of 160 miles, stored in tankage at the utility's site in Novosibirsk and burned in six 220 MWe power plant boilers there. The extreme winter conditions at the project sites made it imperative not only to bury the pipe below the frost line but also to use a concentrated coal-water slurry fuel which does not require dewatering facilities and settling ponds at the pipeline's destination.

It has been well reported in the press that the ultimate aim of the U.S.S.R. is to transport coal and lignite from sparsely settled Siberia to the industrial areas west of the Ural Mountains in long distance pipelines, up to 3,000 miles. They see this as a solution to conserving that country's oil and gas resources which more and more will be exported to generate foreign currency income.

More detailed information on the Italian and U.S.S.R. projects can be found in Messrs. D. Ercolani's and F. Grinzi's technical paper, "Snamprogetti's Coal-Water Fuel Reocarb: A 1989 Overview," which is included as an attachment hereto.

In the developing world, Snamprogetti is studying the feasibility and applicability of developing coal pipeline systems in situations such as China's, India's, and

U.S.S.R.'s (refer to attachment) where there are extensive indigenous coal reserves, limited infrastructure and inadequate rail and road transportation systems. The use of coal-water fuels and dedicated pipeline networks represents an attractive lower cost solution for those countries.

In the highly industrialized countries and particularly the U.S.A., we are confronted with a growing dilemma as we plan our future energy needs into the next century. On the one hand, it is clear for a number of reasons that there will almost inevitably be an increasing use of coal as the main source of energy in the long term; but on the other hand, this trend has given rise to widespread concerns with the problems of environmental pollution and acid rain caused by the combustion of coal on an even larger scale than now.

Several of the proposed solutions to the environmental problems with coal combustion involve the use of coal gasification and fluidized bed combustion equipment which in many cases must be fired with ground coal, usually as a finely powdered or pulverized material. The processing, movement and storage of dry, pulverized coal incurs the multiple risks of spontaneous combustion, which can cause serious fires and explosions, and of contaminating the surrounding areas with coal dust. It must therefore be produced, stored and transported in air-free, sealed systems. For these reasons, the coal is often ground at the site of each power plant and industrial boiler in order to minimize the problems of handling the pulverized coal before it is burned.

A cleaner and more environmentally acceptable system overall to feed power plant boilers, gasifiers and fluidized bed combustors would be based on using coal-water fuel which would have a number of decided advantages in addressing the various problems we have been trying to solve. With this approach, we can foresee a broad, new concept for the processing, marketing and combustion of coal which draws many parallels to the more highly developed worldwide networks of petroleum refining, distribution and consumption. A coal-water fuel quickly and economically transforms dry coal from a bulky and cumbersome material to handle, store, transport and burn, into a liquid which is by far the preferred form of fuel due to its ease of handling and its high energy content for the space it occupies. The U.S. government has in the past supported many synfuel development projects whose primary aim is to hydrogenate coal to produce liquid and gaseous hydrocarbon fuels. Those liquifaction processes are extremely expensive and may be justified well after the year 2000 to make liquid fuels for automotive vehicles. For heavy fuel applications in the 1990's however, it makes more economic sense to replace fuel oil with coal-water fuels which can be made at a fraction of the cost of liquid hydrocarbons from coal.

The question then arises of what to do about the ash and sulfur content of the coal in the CWF product. The preparation of CWF involves the grinding of coal to extremely fine particle sizes, which coincidentally makes the coal more susceptible to being beneficiated. The beneficiation process reduces the ash and sulfur content to a greater degree than that which can be accomplished with beneficiation of the coarse coal at the mine head. Grinding facilities to make pulverized coal at power plant sites do not normally include beneficiation steps because these invariably introduce water to the coal mix which would then have to be dried before firing as pulverized coal. Furthermore, electric utilities are extremely reluctant to get involved in beneficiation and in providing the considerable physical plot areas adjacent to their power plants that would be needed for such equipment and processes.

With these thoughts in mind I wrote last year a keynote address entitled "Coal Vectorization - A Perspective," which I presented at the Thirteenth International Conference on Coal and Slurry Technology, April 13, 1988. A copy is attached to this testimony for your information and reference. It emphasizes the need (and the lack in the U.S. so far) of integrating and optimizing the overall process of coal production, transportation, storage, and utilization in more efficient and more economical nationwide and worldwide systems.

Taking the "coal vectorization" approach, we can visualize the CWF concept germinating and growing into a broad scenario, with a series of commercial developments taking place as follows:

1. Large scale CWF production plants would be located mainly at or near mine sites where such plants could process the rejected coal fines as well as the run-of-the-mine coal to whatever levels of ash and sulfur that can be achieved with the appropriate beneficiation technologies currently available.

2. CWF products would be made in various grades that would be oriented to the intended end user. For example, boilers designed for oil firing would require a lower ash CWF than equipment designed for coal-firing. Large diesel engines would require a CWF with an even lower ash and a finer coal particle size. Fluidized bed combustors are designed to accept un-beneficiated coals and the preparation of CWF for FBC use would probably exclude a beneficiation step and the attendant costs.

3. Tankage facilities for CWF storage would be provided at the CWF production plant sites and at distribution centers in industrial areas. Such storage would be completely non-hazardous, non-volatile and non-flammable compared with the storage of petroleum products.

4. Shipment of CWF products, depending on the quantities and routes, would be accomplished by several alternative means: rail tank cars, tank trucks, river barges, coastal vessels, and ocean carriers.

5. For continuous movement overland of larger quantities of CWF, pipeline networks would provide in many situations the most economical means of transportation, except perhaps where navigable rivers are conveniently available along an intended route. In particular, pipelines would be most appropriate for CWF transport from the coal mine areas to major storage/distribution centers and direct to large power plants and industrial consumers.

6. The potential end users of CWF products fall into many categories, which would include but not be limited to:

- Power plant boilers
- Industrial boilers and furnaces
- Fluidized bed combustors
- Gas turbines
- Coal gasifiers for power generation
- Co-generation systems of various types
- Coal gasifiers for chemical plant feedstocks
- Cement kilns
- Metallurgical plants
- Stationary and marine diesel engines.

Eventually, larger mobile diesel engines for heavy mining equipment, road vehicles and railroad engines will be able to use a highly beneficiated CWF based on micronized coal. This specialized technology is currently under development by several groups in the U.S.A. and abroad, in some cases under sponsorship of the U.S. Department of Energy.

From the foregoing it is clear that this new and promising industrial concept of using coal-water fuel as a clean, broad-based energy source is ready for commercialization, but its full potential in the U.S.A. can be realized only when the enabling "eminent domain" legislation is passed by the U.S. Congress to provide the rights-of-way for coal pipelines, which are an integral and necessary prerequisite for the optimum implementation of this emerging technology.

The debate on coal pipeline legislation has been going on for more than ten years, but there have been some developments recently which are worth emphasizing at this time.

As I see it now, the debate has been conducted primarily on two issues, which recent technical and economic developments have diminished in importance among the arguments to be considered in your committee's deliberations on this legislation.

The first issue relates to the coal-water technology per se and assumes that "conventional" coal-water slurry will be used as the transport medium in future coal pipelines. This assumption has raised concerns of environmental pollution and depletion of water resources. With the new concentrated coal-water fuel (CWF) technology, however, these are no longer major problems for bituminous coals which can readily be processed into stable and combustible coal-water mixtures, using much less water and avoiding the dewatering of the coal before it is burned.

I would emphasize the substantial advantages of concentrated coal-water fuel (CWF) over conventional coal-water slurry systems, which include:

1. A significant reduction in the consumption of water and the pipeline pumping energy required per ton of coal transported, to less than half of what is required with "conventional" coal-water slurry;

2. The possibility of including advanced coal beneficiation technologies in coal-water fuel

plants, so that CWF can also fill the role of an urgently needed clean coal technology;

3. The elimination of the mechanical and environmental problems associated with dewatering "conventional" coal-water slurries at the pipeline's destination, since coal-water fuels are burned directly without dewatering;

4. And most important, the creation of a coal-water fuel alternative which can effectively replace fuel oil for many industrial and power plant applications.

The second issue focuses on the railroads which have consistently offered the strongest opposition to coal pipelines. To the railroads and its adversaries the main question seems to be: "Should coal be transported within the U.S.A. by railroad or by coal pipeline?"

This may very well be an academic question. The outlook is that even with the coal pipeline legislation in place the railroads will continue indefinitely to carry coal to the current and future users of dry coal. Coal pipelines will not take much, if any, of the business of supplying dry coal to the end-users because "conventional" coal-water slurry technology must be used when dry coal is the end product, and such pipeline projects will always encounter an opposing coalition of water conservationists, environmentalists, and the railroads along the route that are prepared to reduce freight rates rather than lose a substantial share of the dry coal market.

It is important to note that the lower cost "concentrated" coal-water slurries in CWF technology cannot be utilized to supply dry coal at the pipeline destination because such slurries cannot readily be dewatered after pipelining. The dispersant chemicals in the slurry have been added to prevent settling out of the coal and would effectively make dewatering extremely difficult and uneconomic.

I should now like to raise again what I see is the central issue in the debate on coal pipelines, an issue which is more substantive and yet has hardly been discussed in this long standing controversy. It is:

> "How can the U.S.A. best replace imported oil with domestic coal, in order to reduce oil imports and the U.S. trade deficit?"

U.S. imports of crude oil and refined petroleum products are increasing steadily and are approaching 8 million barrels per day which is more than half of the U.S.A.'s total consumption. At current oil prices, this amounts to $150 million per day or more than $50 billion dollars per year. If and when the price of oil re-escalates to $30 or more per barrel, sometime in the next five or ten years, and even assuming that oil import quantities remain at present levels, then the contribution of imported oil to the U.S. trade deficit will rise to $80 billion or more. Further increases in oil imports plus escalation will eventually put this figure over $100 billion. And the fact is that U.S. oil consumption and imports are continuing to rise almost inexorably, further aggravating this situation.

If we examine the coal-water fuel solution as one way to mitigate this national burden, we find here an ironic situation indeed, and an inconsistency of purpose. We might expect that coal-water fuel and imported oil would have the same opportunities and follow the same ground rules in competing for the U.S. energy markets. But that is not the situation in reality!

Today, much of the imported oil and/or its refined products move inland from U.S. ports to refineries and end-users via "eminent domain" oil pipelines. In the present situation domestic coal-water fuels would be denied that privilege and would be restricted to other means of transport. No businessman in his sound mind would invest in coal-water fuel facilities with such a marketing handicap. This is also the reason why R&D work on pipelining coal-water fuels has been neglected by U.S. firms. There is little or no incentive to spend research money on a dead-end situation.

By any process of logical reasoning, we are led to the conclusion that coal-water fuels and coal pipelines are clearly in the national interest. It would be economically irresponsible to ignore this and to accept the specious arguments that have been presented against the proposed coal pipeline legislation. In fact, I have heard no argument or concern which has sufficient validity to override the obvious need and urgency for the U.S. to reduce its trade deficit, avoid a further weakening of the U.S. dollar and prevent another inflationary spiral.

The facts are: coal pipelines and coal-water fuels will create new initiatives which will increase revenues and jobs for coal and related industries, without taking any away from the railroads; oil imports will be reduced; and in a more efficient domestic environment, coal exports will increase.

And for all this, there is hardly any price to pay -- no subsidies, no tariffs, and very little inconvenience. Overall, and in every respect, the U.S. economy will benefit and be strengthened.

Attachments:

- "Coal Vectorization - A Perspective," by R.M. Braca, Snamprogetti USA Inc., 13th International Conference on Coal and Slurry Technology, April 13, 1988, Denver, Colorado
- "Snamprogetti's Coal-Water Fuel Reocarb: A 1989 Overview," by D. Ercolani and F. Grinzi, Snamprogetti S.p.A., Milan, Italy, Coal Trans 88, October 1988, Rotterdam, The Netherlands

COAL VECTORIZATION

A PERSPECTIVE *

by

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COAL VECTORIZATION - A PERSPECTIVE

I feel greatly honored to have been invited today to make the "Keynote Address" of this 13th International Conference on Coal and Slurry Technology. I am very pleased also to be a member of this participating group that has for many years worked so hard to carry forward and publicize the many efforts that are being made to advance the converging technologies of clean coal and of slurry systems, which are becoming more and more important in developing and vectoring the world's coal and mineral resources to the benefit of a burgeoning world's population.

In this perspective I'd like to summarize some of the activities that are going on, particularly in the development and use of coal-water slurry and related technologies, as examples of what I've chosen to call this subject - coal vectorization - a concept which is currently being practiced in varying degrees by all of us attending this conference.

In preparing this talk, I knew that I was using a term which is not common in the industry or in the field of economics. We couldn't find it in a dictionary of economics or in any English dictionary, for that matter. I did find someone in the World Bank who said they use the term there occasionally, but not officially!

If the word did appear in a dictionary, it would probably follow, by analogy, word forms such as "dramatization - the act or process of dramatizing". And so the definition for the word "vectorization" would be "the act or process of vectoring". The trouble is that my old dictionaries at home do not carry the verb "to vector", but more recent editions do, with the definition: "to direct or to guide - a flight controller vectors an airplane to a safe landing".

We could run a brief survey among several people to ask their views on the meaning of "vectorization" in the context of their professions, and we might hear the following:

1. An environmentalist says that it is the processing and removal of waste materials from population and production centers to sites remote from society. (Eventually to a very large incinerator - perhaps the sun?)

2. An engineer says that it is the processing and distribution of materials and resources to meet the needs of consumers. (Engineers always know how to do things, but often need someone to tell them what to do. And so the profession of economics was invented.)

3. An economist states that it is the process of finding the "least cost solution" in a micro-economic analysis of producing and transforming specific goods and resources and transporting them to market. (Economists always know what to do, but rarely know how to do it. Fortunately, they have the engineers to do it for them.)

In our company we use the term "vectorization" particularly when we are trying to figure out what to do with a remote resource for which it is not at all clear how best to develop and utilize it and when is the best time to do these things. And so, you can see that we are really treading on quite familiar ground in propounding this concept.

One great advantage of using a word that is not in the dictionary is that we can tailor the definition to the needs of the situation and no one can dispute it.

Therefore, and for the sake of good order and this discussion, we'll define "vectorization" as:

> "the process of optimizing the overall system of developing a product or a resource and bringing it to the marketplace, by enhancing its form, utility and value in terms of the convenience and economics of producing, transforming, transporting, storing, and utilizing it as may be fitting and beneficial to society".

This process must of course take into account such natural economic constraints as the availability of and competition for capital funds and the competitiveness of the alternative products or resources that can fill the same needs and wants of society.

Having said all that, we may now turn to the subject at hand, which is "coal vectorization" and the various steps and aspects of that process which the participants will be discussing at this conference.

In applying this concept to the coal industry in the U.S. for example, we encounter two main problems:

Firstly, there is a fragmentation of effort and often a lack of coordination among the many parties involved in the various development and optimization steps that comprise the overall process. The question then is: "Who shall bear the prime responsibility of carrying out the vectorization of coal?"

The reality is:

- the coal companies are focused on getting the coal out of the ground, cleaning it and sending it to market;
- the railroads are looking after their systems to transport the coal;
- the utilities are focused on receiving, storing, grinding and burning the coal;
- the equipment suppliers are concentrating on optimizing their specific items of equipment; and
- the government is worrying about the environment and strategic energy supply issues.

In this scenario it is apparent that no one is really performing an overall function that we can call "coal vectorization". By comparison, you can be sure that the major oil and gas companies are doing this for their own industries.

Secondly, the proponents of coal utilization have all to do to cope with the natural economic constraints we have mentioned before. But someone then comes along and adds some artificial constraints - you can't or you must do this or that, you can't use pipelines, you must use railroads on their terms, (The Staggers Act), and so on. The process of vectorization is thwarted and society pays the price for a cost advantage and/or a benefit that is lost or delayed unnecessarily.

* *

We must avoid the temptation to overgeneralize because the actual situation varies from country to country. So let us examine several countries around the world (all have representatives here) to see what is being done in each one to implement the concept that is my subject today. Special attention should be paid to those countries which have large domestic coal resources and large coal consumptions internally, so that "coal vectorization" can be applied entirely within their borders.

Britain and Scandinavia have been very active in developing and commercializing "fluidized bed combustion" (FBC) which has great advantages for lower-grade coals and combustible materials, and in reducing SOx and NOx emissions. In fact, the British National Research and Development Council (NRDC) held the original patents on FBC in the 1960's and licensed them to a number of companies. The extensive tests performed on the pressurized FBC demonstration unit at Grimethorpe in the U.K. has provided considerable technical information to the industry on this technology.

The use of coal-water systems and pipeline networks to fuel pressurized and atmospheric FBC power plants is a synergistic development that could be attractive in the future, particularly in the U.K. when North Sea oil and gas production declines in the 1990's.

Sweden and Finland are actively commercializing their pressurized and atmospheric FBC technologies. A number of Swedish companies have also been active for many years with coal-water fuel demonstration units, and in some cases these incorporate coal beneficiation steps within the fuel preparation plants.

The People's Republic of China has many coal cleaning and coal slurry programs in progress, as evidenced by the 13 technical papers which its representatives are giving at this conference.

There are some statistics that you should keep in mind when you listen to their papers. Firstly, China is one of the largest producers and consumers of coal in the world - almost one billion short tons per year - and this represents over 75% of that country's total energy consumption. Secondly, in some areas of China, as much as 80% of the freight carried by the railroad is coal. Imagine what a few slurry pipelines could do to relieve this transporation burden.

One major problem China has, however, is that two of the regions with the largest coal deposits, Shanxi and Inner Mongolia, have little water available in the vicinity. Those areas may be candidates for coal-methanol or coal-CO2 slurry pipelines.

There are other substantial coal-rich regions in China which do have water available, and I expect that coal-water slurry pipelines and systems will someday be implemented in those areas. In this respect, a joint venture of two Italian companies, Snamprogetti and Laviosa, has reached an agreement with The World Laboratory of Geneva to investigate opportunities, run pilot tests and set up the basis for a CWS pipeline in China for a specific route to be identified in the study. During the work implementation, Academia Sinica and the Ministry of Coal Industry will carry out specific activities in order to investigate, check and evaluate the results of the work performed by the Italian joint venture.

In India it is not an uncommon occurence to have a power plant, and the dependent industries nearby, shut down because the trains did not arrive with the coal needed to fire the boilers. A few years ago this was one of the major causes for lost production on their fertilizer plants. While the railroad system may not at all times be up to its task of carrying the coal to fuel the Indian economy, there are ample supplies of water where the indigenous coal resources lie. One of the first definitive studies is now being commissioned by the Indian government on the feasibility of a badly needed CWS pipeline system in that country.

In Italy there are extensive coal-water slurry programs which are being conducted by the electrical group, ENEL, and by the energy group, ENI, of which my company, Snamprogetti, is a member. An 80,000 ton/year CW fuel facility is currently in operation in Sardinia at the Porto Torres Petrochemical Complex of EniChem where it provides CWF to a 300 t/hr process steam boiler that has been fitted with combination burners for oil or CWF firing. The group has plans to build a 500,000 ton/year facility which is now in the design phase and which will eventually be followed by similar plants at several other locations. One purpose of these facilities is to utilize in the CWF the group's production of petroleum coke which we have shown makes a stable and combustible coke-water slurry.

ENEL has been running combustion tests at a number of its boilers with the aim of determining and optimizing the burning characteristics and the extent of boiler derating when converting from oil to CWF. Of particular interest is ENEL'S development of a burner that can change from oil to CWF, and vice versa, with the turn of a valve. This facility makes it possible on a boiler conversion which involves a substantial derating of the boiler to fire CWS normally and to use oil only at peak loads when the full rating is needed.

Both ENEL and ENI are participating in an on-going alternate energy development program which includes coal-water mixtures and is sponsored jointly by the U.S. Department of Energy and the Italian Ministry of Industry. A recent protocol signed between the two parties has added a super clean coal-water slurry (SCCWS) program that will include combustion tests on at least 20,000 tons of the superclean CWS fuel.

In the U.S.S.R., the very important demonstration project in Siberia will go into operation late 1988 or early 1989. Three million tons of coal per year will be processed into CWF at the Belovo mines and transported in a 20 inch pipeline some 256 kilometers to Novosibirsk. There it will be burned in power plant boilers fitted with special burners that were specifically designed for this service by Combustion Engineering Inc. They were tested in Windsor, CT, using some 800 barrels (160 tons) of CWF prepared in Italy from Siberian coals and shipped across the Atlantic. (We were indeed happy to find that the slurry showed no signs of settling after the long sea voyage!)

The Siberian project is the first step in a classical exercise in "coal vectorization". The next step, now under way, is a joint study of the U.S.S.R.'s Ministry of Industry and Snamprogetti, which will examine the technical and economic feasibility of two CWS pipeline systems each carrying 16 million tons/year of coal, which will run over 2,000 miles from the Siberian mines to the industrial areas west of the Ural mountains. One line would carry metallurgical coal and the other thermal coal. This is an important innovation in the U.S.S.R.'s strategy to substitute coal for oil and gas which, in the short term, will release the more marketable oil and gas for export and therefore improve its balance of trade. In the long term, it will prepare that country for the eventual decline of the world's oil and gas resources and the need to replace a major part of this shortfall by increasing its utilization of coal for future energy needs.

In the United States, we are now highly focused on a national clean coal program to solve the immediate problems of air pollution and acid rain. But there are other economic and strategic issues which must be addressed.

We have a great opportunity to practice "coal vectorization" on a considerable scale and in the national interest. Speaking as a U.S. citizen, I must say that so far we seem to have missed the boat and we will continue to do so if the U.S. coal industry and the U.S. Congress do not get their acts together. In my testimony before the Congressional Hearings on Coal Pipelines in September 1987, I pointed out a harsh irony that has been perpetrated by the railroads, condoned by the U.S. Congress and tolerated by the coal industry. The irony is that imported oil enjoys the right of passage through eminent domain pipelines while U.S. domestic coal is denied that privilege.

This situation is mainly a result of the railroad lobby's strenuous efforts over the last decade or more in blocking U.S. Federal "eminent domain" legislation for coal pipelines. It is curious to me that the U.S. coal industry's efforts to obtain passage of this legislation have time and again failed to overcome the opposition of the railroads. All this is going on while the bill for U.S. oil imports, which was $50 billion dollars in 1987, contributes almost one-third of the U.S.' annual foreign trade deficit of more than $150 billion dollars.

I would like for a moment to try to understand why the U.S. coal industry has not taken the lead in "coal vectorization" and instead is leaving the initiative up to the U.S. Congress and the Department of Energy with legislated ad hoc programs. If we examine the current state of the coal industry in the U.S.A., we are led to make at least three interesting observations which may shed some light on this puzzling situation:

1. In the four decades or more since World War II, the coal industry has had to live in the worldwide shadow of oil, with the amount of effort being expended towards developing new coal uses and technologies almost a direct function of the price of oil. For example, the hydrogenation or liquefaction of coal looks great when the price of oil is heading past $50 per barrel and looks terrible when it goes down to $15 per barrel. Like a spigot, the entire synfuels program

was turned on when oil prices rose sharply in the 1970's and was then turned off when prices fell in the 1980's. The lower cost solutions such as CWF programs could have and should have been continued for strategic reasons but the coal industry saw no immediate incentives to do so when No. 6 fuel oil prices plunged from $4.50/million BTU to less than half that figure.

At the peak of the synfuels program, the efforts of the U.S. oil industry to fit coal into the oil refining and distribution system were very costly and premature and tended to divert attention and capital funds from more modest and more realistic technological developments. Demonstration projects were boldly trying to convert solid coal into a synthetic crude oil, while many petroleum refineries were busily cracking heavy oil fractions to produce petroleum coke. The oil experts were certainly confused on which way they wanted to go. It does not make sense to go in both directions when it clearly costs less to hydrogenate petroleum residues, which are already liquid, than it does to hydrogenate solid coal.

In my view, as oil prices rise, a more logical sequence of events would take place as follows: First, coal-water fuels should gradually and systematically replace heavy fuel oil; second, surplus petroleum residues should be hydrogenated or hydrocracked to lighter distillates; and finally when petroleum is no longer able to meet the demands for gasoline, diesel, No. 2 heating oil and petrochemical feedstocks, should we then consider the hydrogenation/liquifaction of coal.

In the U.S., the first two steps can take place in the 1990's in order to reduce oil imports, taking advantage of the fact that today the price of CWF vs. No. 6 fuel oil is a standoff, i.e., $2.00 to $2.25/million BTU for either one. The current U.S. consumption of heavy fuel oil, about one million barrels per day, could be replaced by 125 million tons per year of coal.

The final step of hydrogenating coal would come in the next century when oil conservation becomes a necessity and oil prices rise above $50/Bbl in 1988 dollars. Such a program can and should be set up and implemented independent of the periodic swings in oil prices that may take place in the meantime.

2. A second factor which has weakened the U.S. coal industry is its quasi-fatalistic relationship with the railroads. Each one feels desperately dependent on the other for survival and each seems afraid to upset the delicate balance in their relationship. In many areas, they coexist in a mutually exclusive arrangement: a rail line is justified by the existence of a coal source whose development is justified by the existence of a rail line. The alternative of using a pipeline cannot be considered in the present situation.

   The upshot of this relationship is a higher cost of transporting coal to the end user, the utilities in most cases, and ultimately a higher cost to the electrical consumer, known officially as the ratepayer. Coal exports from the U.S. have also suffered, with the cost of moving coal from West Virginia to Baltimore now being greater than that of shipping it from Baltimore to Europe. About two years ago the Danish government complained to the U.S. government about this specific anomaly and the high U.S. rail freight charges that caused it.

   We can redress this situation, and surely both parties in this relationship would also be better off in the long run if they were less dependent on each other and focused instead on ways to improve their competitiveness in their respective industries, namely energy and transportation.

3. Finally, there are two questions I would like to pose:

   "What constitutes the coal industry in the U.S. today, and how can it be mobilized for its future role as the nation's principal energy provider?"

   We can easily indentify many strong, independent oil and gas companies which for many years comprised the bulk of the blue chip energy stocks on Wall Street. If we look for the equivalent in the coal industry, we find two or three large independent companies and many small ones. Who are the ultimate owners of many of the coal mines? Oil, chemical, steel, railroad, utility and other industries.

In this highly fragmented situation, and with the disparate interests of the many and diverse owners, it is no wonder that we find the coal industry's technology developments and "vectorization" programs lagging in the U.S.A. The D.O.E. has taken the leadership in the last years in trying to guide a reluctant coal industry into the next century by developing new uses for coal, while it is trying to find in the U.S. Government's clean coal programs solutions that will mitigate the rising concerns with acid rain. The hope is that some day an enlightened private U.S. coal industry will rise, take up the cause and become the leader rather than the follower in "coal vectorization"!

* *

With the foregoing as background, we are now looking at an approaching 21st century which will come upon us whether or not we are prepared to receive it. There are really no great mysteries about what we are going to find in the first half of the next century when we are in its midsts:

- The world's population will continue to grow -- 5 billion now, 8 or 9 billion by mid-century.
- Affluence and consumption in some developing countries will grow, serving to compound the increasing demands and problems of an expanding population.
- Eventually oil and later natural gas will come into short supply.
- A continued paranoia towards nuclear power will cause a leveling off and perhaps even a decline of this energy source.
- The fusion scientists will still be working very hard on finding a viable solution that will not bankrupt the capital sources needed to fund the commercialization of this technology.

- And then ironically the mantle will pass to the coal industry to fill the role for which it is not very well prepared today.

When all this has come to pass, a succeeding generation will ask:

> "Why didn't our forefathers do something to prevent this situation? Didn't they understand the need for energy vectorization?"

If they find a record of these proceedings, they will learn the truth:

THE WORD "VECTORIZATION" WAS NOT IN THE DICTIONARY!

Mike Braca
April 1988

SNAMPROGETTI'S COAL-WATER FUEL REOCARB: A 1989 OVERVIEW

F. Grinzi and D. Ercolani
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SNAMPROGETTI'S ACTIVITIES ON COAL-WATER FUELS (CWF)

Snamprogetti is the international engineering contractor and technology research company of the ENI Group and as such performs consulting, engineering and prime contracting for chemical and petrochemical plants, energy systems, power stations, oil/gas/slurry pipelines-onshore and offshore, industrial plants, infrastructure and environmental impact studies.

In the area of CWF technology, Snamprogetti's main interests are CWF production, transportation, and combustion systems for the more efficient utilization of coal resources.

INTRODUCTION AND TECHNICAL BACKGROUND

Snamprogetti developed the proprietary CWF technology, trademarked REOCARB, with the following aims:

1) to produce an alternative fuel to replace heavy fuel oil, and

2) to develop an alternative, more efficient means for handling, transporting, storing and burning coal.

In order to attain the current status of development, R&D on high concentration coal-water mixtures focused on overcoming the limitations of conventional or dilute coal-water mixture pipeline transport technology. The main limitations are:

- the need to maintain pipeline flow above the minimum operating velocity because of the settling behaviour of the dilute slurries;
- the need to dewater the coal at the pipeline terminal;
- the need to clean the water after dewatering;
- the need to grind the coal after dewatering and before combustion.

The Reocarb technology was developed in three R&D stages:

- First, laboratory work was conducted which showed that the optimization of the bimodal grain size distribution of coal in the slurry was found to produce the optimum characteristics in concentrated slurries.

- The second stage was performed on a pilot plant in Fano, Italy, where a 250 kg/h slurry production plant was set up to test different process configurations and to demonstrate the reliability of Snamprogetti's Reocarb based on the bimodal concept.

  At the same time, extensive pumping tests were carried out in Fano in 4 to 10 inch diameter pipes to study the rheology of the mixture under pipe flow conditions, to measure friction losses and to check the accuracy of design correlations.

  The second stage of experimentation concluded with experimental combustion tests to evaluate the combustion properties of the coal-water mixtures.

- The third important stage was the design and construction of the demonstration and industrial slurry production plants shown in Table 1.

  At the initial commercialization stage, the Reocarb technology was selected by USSR's Techmashimport in 1985 for the implementation in Siberia of the Belovo-Novosibirsk coal slurry preparation plant and pipeline project. This is the first pipeline system worldwide specifically designed for concentrated coal-water fuels.

  After the start of the Russian project, the design of an industrial plant for Enichem Anic was begun and this is currently under way. This plant will have a design capacity of 500,000 t/y of coal-water fuel. An advanced coal beneficiation system developed by Eniricerche (the research arm of the ENI Group) will be integrated into the plant design. Construction is scheduled for 1988/89 and plant commissioning is expected by the end of 1989.

The purpose of this industrial plant will be to fire CWF in a 300 mt/h steam boiler designed for oil firing, within a petrochemical complex at Porto Torres, Sardinia. Part of the CWF production will be for the boiler and the balance will be made available on the open market.

As part of the third stage development, extensive commercial combustion trials have been performed since 1982 by Snamprogetti and its associated companies to check the combustion properties of different Reocarb mixtures and to select and develop combustion systems suitable for industrial applications. The trials were performed in close cooperation with major burner manufacturers at their test facilities as shown in Table 2.

Burners supplied by Combustion Engineering/Tosi, Deutche Babcock and Peabody were tested on Enichem Agricoltura's retrofitted boiler (15 MWt, 22 t/h steam) at Manfredonia.

Other combustion trials were performed on a 300 t/h steam (200 MWt) industrial boiler, equipped with CWF burners, situated in the EnichemAnic's petrochemical complex at Porto Torres. That boiler is supplied with CWF produced on site in the existing 100,000 mt/yr slurry preparation plant on site.

Studies have been carried out on slurry fuels to evaluate slagging, fouling and combustion parameters.
These activities were important as they enabled Snamprogetti to implement the conversion of the Novosibirsk power station, whose boilers were originally designed to burn dry, pulverized coal. Each boiler unit is being equipped with 16 tangential burners, each having a capacity of 8,000 kg/h of CWF.

The progress of the combustion technology developments is summarized in Tables 3,4 and 5.

USSR SIBERIAN PROJECT

The contract for this project was awarded to Snamprogetti by Techmashimport in the USSR in August 1985.

The Siberian project represents the first industrial application of a comprehensive CWF technology worldwide. It consists of an integrated system for production, transport by pipeline and direct combustion of coal-water fuel in a thermoelectric power station.
The slurry production plant was built near the city of Belovo, in the center of the Kuzbass region coal fields. Five million metric tons/year of coal-water fuel will be produced and piped, via a 20 in. pipeline, to a power station at Novosibirsk, 260 km away.

Experimental Program

The coal specified for the design of the Siberian project has the characteristics shown in Table 6.

The basic design phase started with the performance of specific pilot plant tests on the Kuzbass coal to establish the main design criteria and the specifications for the process equipment.

The tests included:

- Optimization of the slurry characteristics to achieve the best formulation in terms of meeting the requirements for combustion and attaining maximum concentrations of coal in the CWF,
- Pumping in a test loop and simulating the operating conditions expected in the pipeline,
- Conducting combustion tests on a 5 t/h tangential burner in Combustion Engineering's test facilities in Windsor, CT (USA).
- Simulation of restarting the pipeline after a long period of shut-down.

The final result of this program was the formulation of a coal-water mixture that met all the requirements for transportation, storage and combustion. The characteristics of the Siberian CWF product are shown on Table 7.

At the end of January 1986, 160 tons of slurry made with Kuzbass coal was produced by the Laviosa plant in Italy at Leghorn, and 800 drums of that slurry were shipped by sea to the USA for combustion tests. The drums were opened 50 days after preparation, shipment and storage, and the slurry was found to be stable and fluid.

Combustion Engineering's combustion tests at Windsor using a specially designed CWF burner were highly successful and the stability of the CWF has been well demonstrated with the USSR's Belovo coal throughout this program.

Description of the Project

The main features of the Siberian CWF project are summarized in Table 8.

The slurry production plant at Belovo will use a complete wet grinding process designed to obtain slurries with a bimodal grain size distribution curve with minimum energy consumption. The plant will consist of 7 production lines, each line having a nominal capacity of 60 metric tons/hr. of dry coal, equivalent to about 500,000 short tons/year of dry coal converted into 750,000 ST/yr. of CWF per production line. The process scheme adopted for each production line is described in Fig. 1.

The micronizing ball mill produces a very fine slurry which constitutes the fine fraction of the bimodal curve. It is then pumped to the rod mill, where it is mixed with the second stream of dry ground coal. In this second grinding stage, which yields the coarse fraction of the curve, the desired grain size distribution and final concentration are reached. The slurry then passes through mixing tanks to improve its homogeneity and its rheological properties. The CWF product is stored in two buffer storage tanks, each with a capacity of 5000 cubic meters. Pumps drawing from these storage tanks feed the 150 mile pipeline. Before reaching the main pipeline, the slurry can be pumped through a test loop pipeline 1 km long, having the same 20" diameter as the main pipeline.

The pipeline which links the Belovo plant to the power station at Novosibirsk is 256 km in length and has a diameter of 20 inches.
Three main pumping stations are required: the first one is at the beginning of the pipeline, at the production plant, the second and third are located 90 km and 170 km, respectively, from the first.
The pipeline terminal consists of two slurry storage tanks, with a total capacity of 40,000 cubic meters.

The thermal power station at Novosibirsk consists of six boilers each with a capacity of 670 t/h of steam. Operating conditions are 165 bar and 545 C. The boilers were originally designed to burn dry pulverized coal in tangentially firing burners.
For conversion to CWF, each boiler was fitted with a new fuel feeding system, a new corner placement for the burners, a new burner management system and a compressed air system for the atomization of the fuels. Since it was considered prudent to maintain the capability of burning CWF or dry coal, burners for each fuel are provided at alternate elevations in the boiler windboxes (Fig. 2).

Each boiler has been supplied with 16 CWF burners, 20 pulverized coal burners and 4 fuel oil burners. The atomizer for coal water slurry is the Y-jet type and uses compressed air as the atomizing medium. The firing system for the Novosibirsk project is designed in such a way as to allow switching from pulverized coal to CWF firing automatically. This is also the case when changing from pulverized coal or CWF to oil firing or from oil firing to CWF firing. The new windbox has been fastened to the boiler tubes, in order for it to follow tube expansion. In fitting the new windboxes within the existing boiler, a complete boiler tube panel has been provided in each corner. The windbox has been compartmentalized and equipped with dampers to control the air flow distribution to the burners. The boiler has been supplied with an automation and safety system. The purpose of the automation system is to perform automatically the start-up, normal operation, and emergency shut-down sequences for both the CWF and oil burners, by taking appropriate action on ignitors, shut-off valves and air dampers actuators.

Current Status

As of the winter 1988/89, four of the seven CWF preparation lines have been erected and completed. The pipeline system is ready to run with the initial commissioning phase for the entire overall system already under way. The plan is to start CWF production late Spring 1989 - and to fill the pipeline and to commence pumping to Novosibirsk early Summer.

ENICHEM ANIC PLANTS AT PORTO TORRES

Enichem Anic is a company of ENI's chemical group, Enichem, that is responsible for the production of primary chemicals and derivatives, intermediate and specialty chemicals and pharmaceuticals.

In 1984, Enichem Anic initiated a plan for CWF to be used as a heavy fuel oil substitute in process boilers located at its petrochemical complexes in Italy. The first step in this plan was the construction of a 100,000 t/y Reocarb demonstration plant for the production of petroleum coke-water slurries and coal-water slurries, at Porto Torres, designed by Snamprogetti according to its proprietary Reocarb process. The plant was put in operation in 1985. CWF produced from this plant has supplied fuel for several combustion trials on a 300 t/h steam boiler equipped with CWF burners.

The next step of Enichem Anic's plan will be completed with the construction of the second Reocarb plant at Porto Torres, with a capacity of 500,000 t/y of CWF, and with the completion of the retrofit of the existing 300 t/h boiler from oil and gas-firing to CWF-firing.

The characteristics of the boiler in its original design and after the retrofit are indicated in Table 9.
The boiler assembly after retrofit is shown in Figure 3.

The boiler retrofit will be made in two steps, as follows:

First Step (completed in 1986)

- Installation of 6 new burners manufactured by Peabody, each having a capacity of 5000 kg/h of CWF. The burner design was based on tests conducted on the Manfredonia plant test boiler where a 3500 kg/h Peabody burner was tested. The new burner installation retains the ability to burn oil and gas as originally designed.
- Installation of supplementary sootblowers in the combustion chamber walls and for bottom ash removal.
- Installation of a temporary bottom ash extraction system.
- Installation of a temporary multicyclone dedusting system.

Second Step (currently in progress and to be completed by mid-1990)

- Installation of cyclones.
- Bag house installation.
- Fly ash extraction, handling and storage systems.
- Bottom ash handling and storage systems.
- Installation of the DCS system for operation and control.
- Installation of a new compressor for CWF atomization.
- Boiler modification from pressurized to balanced draft.
- Installation of the I.D. fan and driver.
- Modification of the control system for balanced draft operation.

The first step of the boiler modification was completed by Enichem Anic in 1986. From early 1987, tests have been in progress to check the reliability of the retrofit and to determine the design parameters to retrofit other boilers, in addition to evaluating the slagging, fouling, flame temperature profile, ash resistivity, ash distribution, life of burner tips, etc. The fuel atomization media will be either air or steam.

The second step of the boiler conversion is underway and will be completed and commissioned by Snamprogetti by mid 1990. Before starting the erection works to retrofit the boiler, a test program partially funded by the European Economic Community (EEC) will be performed on the same boiler. The test will be conducted on two of the six installed burners using different types of materials with the objective of identifying materials that can give a tip life with CWF equal to that of heavy fuel oil.

INTERNATIONAL ACTIVITIES

Activities in the People's Republic of China

In 1988 Snamprogetti was awarded a contract by the International Centre for Scientific Culture, World Laboratory, of Geneva, Switzerland, for a feasibility study on the applicability of coal-water fuel technology in the People's Republic of China (PRC).

The study will be performed on behalf of Chinese organizations led by the Ministry of Energy Resources and the Chinese Academy of Science.

In the PRC, CWF technology has been the subject of important R&D projects and in just a few years it has arrived at a formidable level of development, which includes the construction of demonstration plants for coal beneficiation and CWF production and the modification of industrial boilers for combustion test purposes.

Considering the paramount importance of coal in the energy scenario of PRC, CWF has always been considered a real option for the creation of a new coal transportation system covering long distances as they exist in China and linking coal production to areas of utilization. The study awarded to Snamprogetti will concentrate on establishing the techno-economic feasibility of an integrated CWF pipeline system at an industrial level.

The pipeline system would begin at Shenmu (Shaanxi coalfield), where the CWF production plant will be located, and would run eastward transporting 7 million tons/yr of coal in the form of CWF. Most of the CWF would be delivered to two power stations, at Xinchen and at Dagang, located along the route, about 500 km and 850 km respectively from the start of the pipeline. 3.6 million tons/yr. would be delivered to Xincheng and 2 million tons/yr. to Dagang. The balance of the CWF would be transported to the pipeline terminal near the port of Tianjin on the Bo Hai Gulf, for export overseas.

Studies for the retrofitting of the boilers in power stations are also included in the project. In addition to the study of the integrated pipeline system, which will begin in 1989, the technical program will include laboratory tests on the coal to be transported, slurry production tests, pipeline transport simulation in pilot scale loops and combustion tests, supporting the feasibility study with reliable design data.

Activities in the Union of Soviet Socialist Republic
The Kuzbass-Ural Coal Slurry Pipeline System

Within the framework of the cooperation existing between Snamprogetti and the VNIIPIGIIDROTRUBOPROVOD (organization of the Ministry for the Construction of Pipelines in the USSR), Snamprogetti is performing a feasibility study on coal slurry pipeline systems for the transport of very large throughputs over very long distances.

The Kuzbass-Ural coal pipeline system would link coal mines in Central Siberia to the regions of the USSR in the Ural areas and to the west. The total capacity of the power plant would be 16.5 million tons/yr. of coal. The total pipeline system length would be 3,700 km.

In detail, the system consists of a trunk line 2,460 km long with pipeline diameters of 38" and 36", delivering coal to three terminals located along the main route. The trunk line will end with two branch lines, serving two other utilization areas. These lines have diameters in the range of 20" - 22" and lengths of 420 km and 790 km, respectively.

The conceptual design of the system was completed in 1988. It included both the slurry production plant and the pipeline which enabled the assessment of the technical feasibility of the project. In parallel, laboratory tests on different samples of coal have been performed to identify the optimum slurry formulation and to simulate the effect of the pumping over long distances in order to investigate possible changes in the rheological properties of the slurry. It was demonstrated that coal-water slurries suitably formulated can be transported via long distance pipeline without appreciable modification. The positive effect of the reduction of the inert content of the coal on the final properties of the slurry has also been demonstrated.

The study of the Kuzbass-Ural coal slurry pipeline including the evaluation of investment costs and the economic feasibility of the project will be completed in 1989.

Studies are also underway for transporting other forms of coal-water slurries in a pipeline which would run parallel in certain sections to the previously mentioned CWF pipeline system.

FUTURE PROGRAMS FOR CWF PREPARATION, TRANSPORT AND COMBUSTION TECHNOLOGIES

Basic research on coal slurriability will continue at Snamprogetti's research and pilot facilities at Fano, Italy, with further investigative work being done on rheological properties, stability and microstructures of slurries.

Other programs include:

- Evaluation of process schemes as an alternative to the original REOCARB process applicable to very large CWF slurry plants.
- Development of the CWF marine transport system.
- Development of coal-water slurry pipeline systems for the transport of very large throughputs over very long distances.
- Integration of the REOCARB process with an advanced coal beneficiation process based on oil aggomeration.
- Study of the preparation of coal- and/or petroleum coke-water slurries with sulphur sorbents having grain size distributions and characteristics suitable for feeding such mixtures to pressurized fluidized bed combustors, as a means of reducing sulfur emissions to the atmosphere.
- Study of the extension of the lifetime of pumps and equipment.
- Further trials to reduce wear of CWF atomizing tips and to evaluate boiler long-term operation.
- Study of pumping systems of very large capacity with particular reference to reciprocating pumps ranging from 1000 to 3600 kw.
- Additional developments of CWF combustion technology, including the use of slagging combustion and flame desulphurization.

CONCLUSIONS

Snamprogetti has developed its coal-water fuel technology with an emphasis on the production of an alternative fuel to replace heavy fuel oils and the development of an alternate mode of handling, transporting, storing and burning coal through intensive theoretical and experimental activity. The CWF technology, Reocarb, has been proven and applied in many demonstration plants in Italy and the USSR.

The first industrial application worldwide of an integrated system for CWF production, transport by pipeline and direct combustion will commence with the of firing CWF in 1989 in the 1200 MWe Novosibirsk Power Station.

Tests made on the 300 t/h boiler at Porto Torres have confirmed the accuracy of the previous data developed in the 20 t/h steam boiler at Manfredonia. Tests are in progress on large scale boilers in order to verify component lifetimes with different types of coal.

REFERENCES

1. F. Grinzi, D. Ercolani
Snamprogetti S.p.A.
"Snamprogetti's High Coal Concentration Slurry Preparation Plant"
CHEM-TECH + ORT '85 - 8 + 14 January 1985 Bombay (INDIA)
Chemical Engineering world vol. XX n. 4 - April 1985.

2. D. Ercolani, F. Grinzi, G. Romani
"Snamprogetti's Reocarb: from the Production Plants into the Boilers"
In: Proc 8th International Symposium on Coal Slurry Fuels Preparation and Utilization,
May 27 + 30 1986, Orlando (FL) USA.

3. D. Ercolani
"Production Plants and Pipeline Systems for Snamprogetti's Coal Water Slurry: Recent Experience and Current Projects in Italy and USSR"
Special report for 11th International Conference on Slurry Technology
March 16 + 18 1986 - Hilton Head (S) USA

4. C. Bernasconi, M. Gentili, R. Maffioli
Enichem Anic S.p.A.
"EnichemAnic Experiences on CWF Production Plant Operation and Utilization"
ATI-ANIMA - Milan, Nov. 14 1986

5. D. Cenacchi
F. Tosi Industriale - Legnano
"Activities in the Field of Coal Water Mixtures (CWM), Conversion to CWM of a 200 MWe Boiler Unit"
ATI-ANIMA - Milan, Nov. 14, 1986

6. D. Ercolani
"Coal Water Mixtures Programs. The Activities of the Companies of the ENI Group in the Field of Coal Water Mixtures"
US-Italy Energy Security symposium 1988

7. M. Hargrove, A. Kwasnik
Combustion Engineering Inc. USA and
F. Grinzi, G. Romani - Snamprogetti S.p.A.
"Boiler Performance Predictions and Field Test Results Firing CWF in an Industrial Boiler"
12th International Conference on Slurry Technology
March 31 - April 3, 1987 New Orleans (Louisiana) USA.

TABLE 1

CWF PRODUCTION
CWF Production Plants in Operation and Under Construction:

Plant/Client	Location	Capacity (metric ton/yr of CWF)	Feed-stock	Situation
Laviosa	Leghorn (Italy)	100,000	Coal	Start-up: March 1985
Enichem Anic	Porto Torres (Italy)	100,000	Coal/Petroleum coke	Start-up: Dec. 1985
Techmashimport	Belovo (USSR)	5,000,000	Coal	Start-up: June 1989
Enichem Anic	Porto Torres (Italy)	500,000	Coal/Petroleum coke	Start-up: Oct. 1989

TABLE 2

COMBUSTION TRIALS

Test Facility		Burner Capacity (kg/hr of CWF)
Dumag	(Austria)	100
Del Monego	(Italy)	100
Babcock-Wilcox	(USA)	250
Deutshe Babcock	(Germany)	2500
Sonvico	(Switzerland)	2500
Enel	(Italy)	400-3800
Peabody-Holmes	(U.K.)	500-2000
Combustion Engineering	(USA)/F. Tosi (Italy)	1300-5200

TABLE 3

DEVELOPMENT OF CWF BURNERS

Burner Firing Capacity	CWF Flowrate per Burner kg/hr
- Manfredonia Test Burner (1*/50 MMBTU/hr Front Wall)	2500
- Porto Torres Industrial Burner (6*/100 MMBTU/hr Front Wall)	5000
- Novosibirsk Burner (16*/140 MMBTU/hr Tangential)	8000

* = units

TABLE 4

DEVELOPMENT OF COMBUSTION SYSTEMS

Boiler Capacity		Steam output (t/hr)
- Test boiler (Manredonia - Italy)	(6 MWe)	22
- Industrial boiler (Porto Torres - Italy)	(80 MWe)	300
- Utility boiler (Novosibirsk - USSR)	(220 MWe)	670

TABLE 5

COMBUSTION RESULTS

. Carbon conversion	98-99%
. Support fuel	none
. CWF feed pressure	12 - 14 bar
. A/F ratio	0.15 - 0.20
. Burner turndown	3/1
. Atomizing medium	steam/air

TABLE 6

CHARACTERISTICS OF THE RUSSIAN COAL

- Ash	10	%
- Volatile matter	40	%
- Fixed carbon	50	%
- High heating value	6600	kcal/kg
- Grindability	40-45	HGI

TABLE 7

RUSSIAN COAL WATER FUEL CHARACTERISTICS

. Design concentration coal in CWF	max. 65%
. Additive	0.5% by wt
. Top size	350 microns
. Viscosity	- less than 800 cP at operating conditions
. Stability	- over 1 month (without stabilizing chemicals)
. Combustion efficiency	- 98-99%

TABLE 8

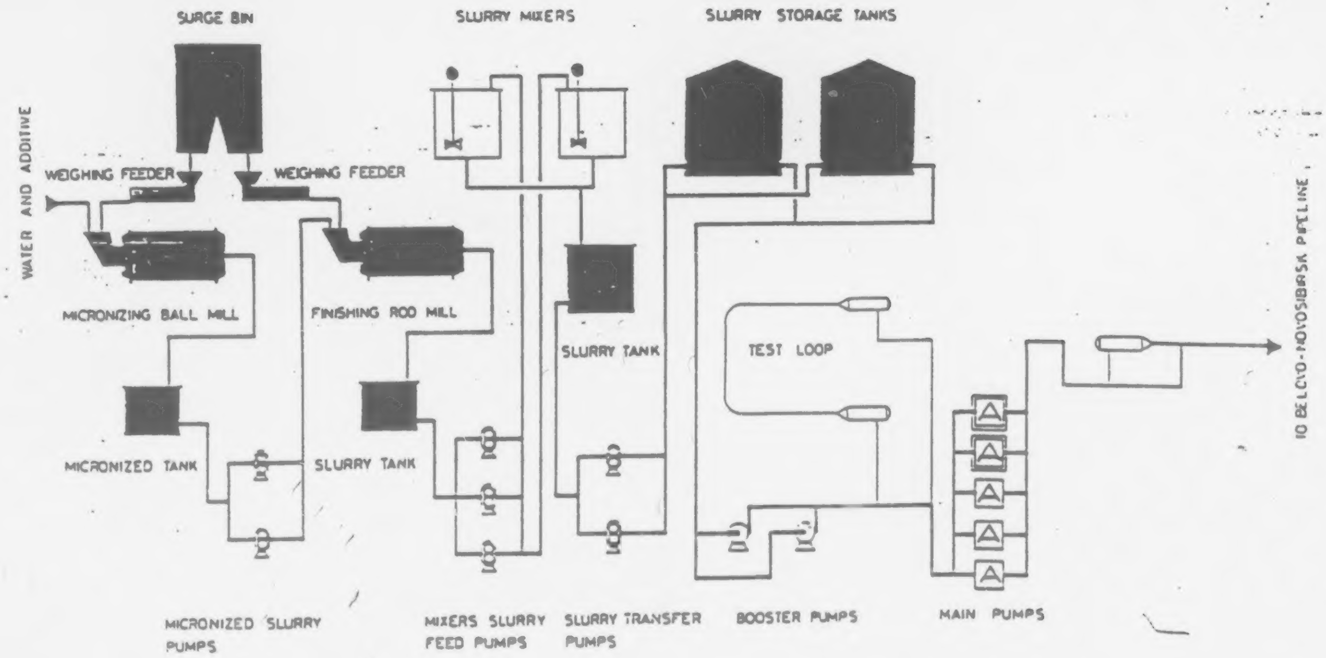
MAIN FEATURES OF THE SIBERIAN CWF PROJECT

- CWF Prep. Plant capacity	3 million MT/yr. (Dry Coal)
- Location	BELOVO
- Process	Wet Milling process
- Production lines	7
- Capacity of each production line	60 t/h (Dry coal)
- Pipeline	20 in. diam. x 256 km long
- Pumping stations	3
- Power stations	6 x 220 MWe
- Location	NOVOSIBIRSK

TABLE 9

CHARACTERISTICS OF THE ENICHEM ANIC BOILER

		Original Design	Retrofit
Boiler type		Radiant	Radiant
Rated capacity at MCR	t/h	300	300 (oil-gas) 210 (CWF)
Steam pressure at SH outlet	bar	108	108
Steam temperature at SH outlet	C	520	520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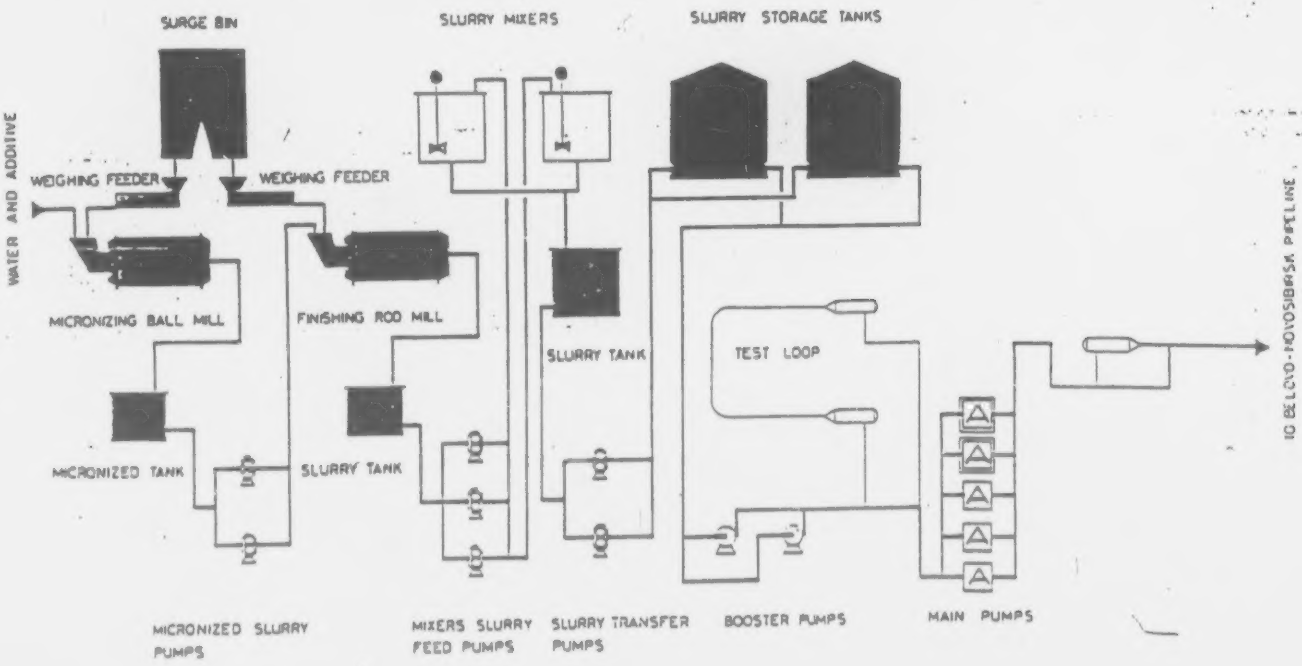
SLURRY MIXERS
SLURRY STORAGE TANKS
WATER AND ADDITIVE
WEIGHING FEEDER
WEIGHING FEEDER
MICRONIZING BALL MILL
FINISHING ROD MILL
SLURRY TANK
TEST LOOP
TO BELOVO-NOVOSIBIRSK PIPELINE
MICRONIZED TANK
SLURRY TANK
MICRONIZED SLURRY PUMPS
MIXERS SLURRY FEED PUMPS
SLURRY TRANSFER PUMPS
BOOSTER PUMPS
MAIN PUMPS

Fig. 1 - SLURRY PREPARATION PLANT AND INITIAL PUMPING STATION AT BELOVO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WATER AND ADDITIVE
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BOOSTER PUMPS
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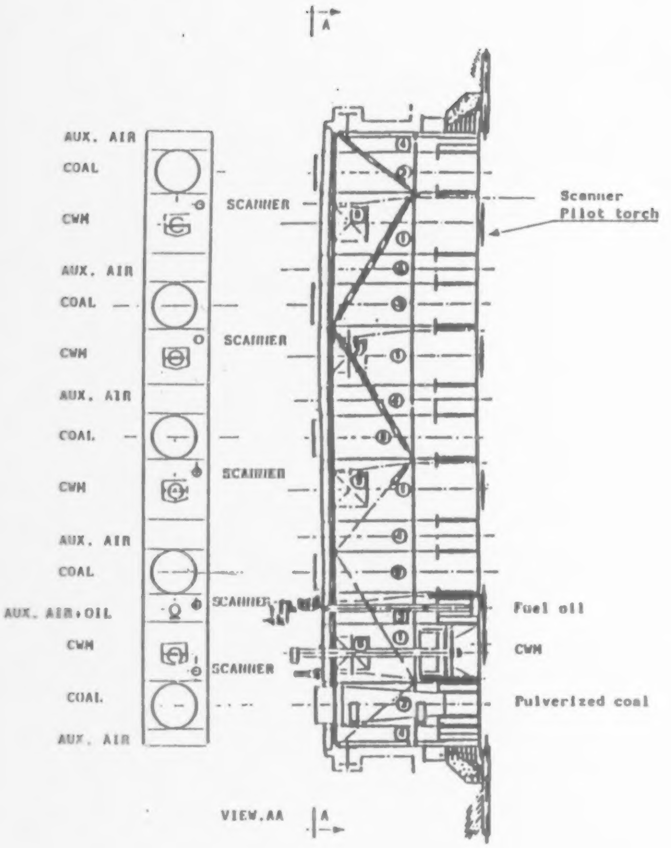
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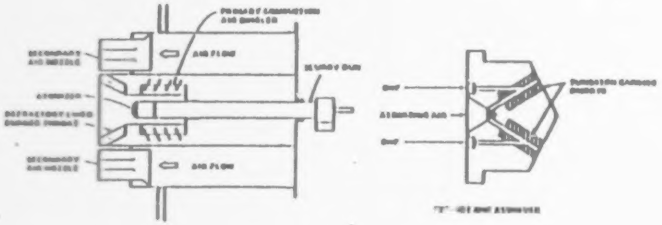
COAL
AUX. AIR
SCANNER
SCANNER
SCANNER
SCANNER
SCANNER
Scanner
Pilot torch
Fuel oil
CWM
Pulverized coal
VIEW.AA
A

- CORNER BURNER ELEVATION CROSS SECTION

1) CWM compartment
2) Pulverized Coal compartment
3) Oil compartment
4) Auxiliary air
5) Primary air

Burner for Tangential (Corner) Firing (TAN) .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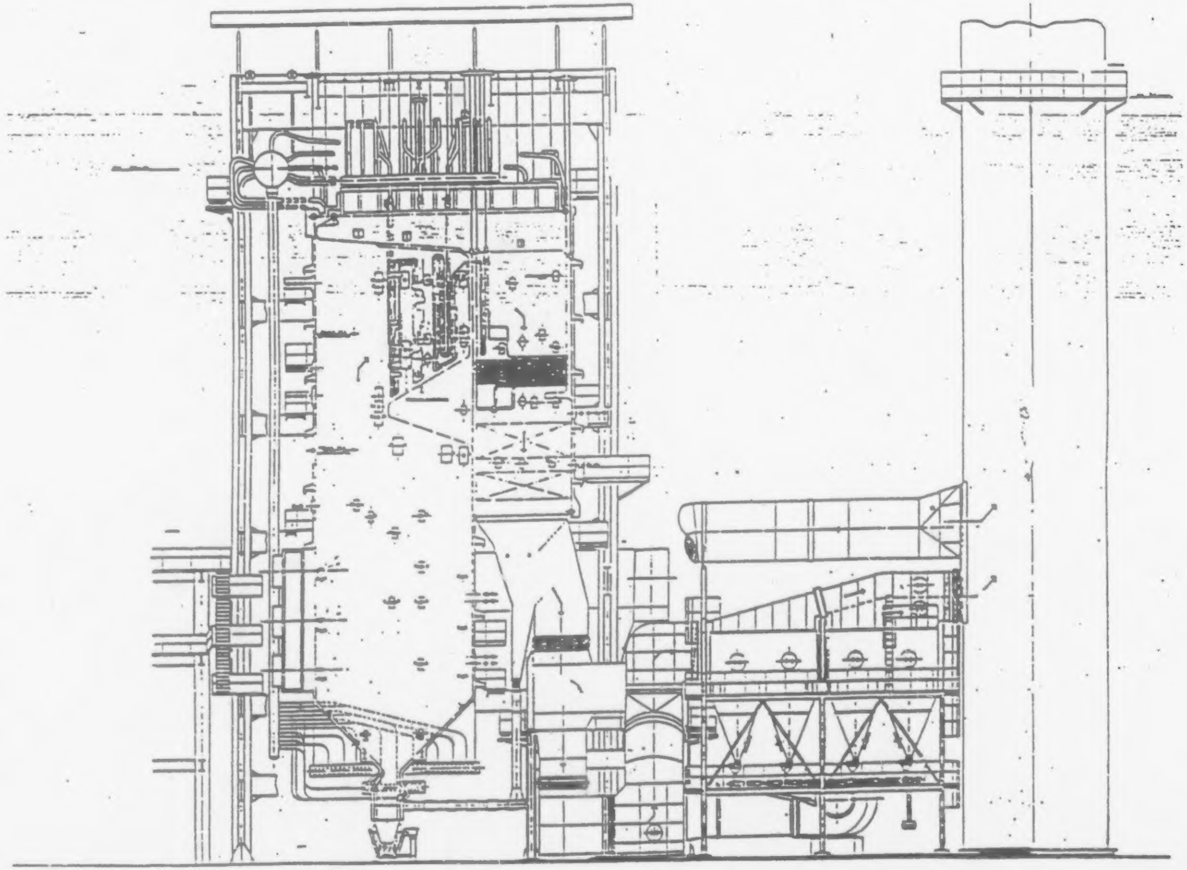
AIR FLOW

Fig. 2 - Y TYPE BURNER COMBUSTION ENGINEERING

Fig.-3 - ENICHEM ANIC PORTO TORRES (SARDINIA) - BOILER 300 T/h, 108 Bar, 520°C (after CWM retrofit)



ENVIRONMENTAL POLICY INSTITUTE

April 28, 1989

Senator Bennett Johnston
Chairman
Senate Committee on Energy and
Natural Resources
364 Dirksen Building
Washington, D.C. 20510

Dear Mr. Chairman:

The Environmental Policy Institute-Friends of the Earth wishes to submit the attached statement for the hearing record on coal slurry pipelines.

Sincerely,

Brent Blackwelder

Brent Blackwelder
Vice President

Environmental Policy Institute
Friends of the Earth
Oceanic Society
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STATEMENT OF THE ENVIRONMENTAL POLICY INSTITUTE-FRIENDS OF THE EARTH TO THE HOUSE INTERIOR AND INSULAR AFFAIRS COMMITTEE CONCERNING COAL SLURRY PIPELINE LEGISLATION (H.R. 402) ON APRIL 12, 1989

This testimony is offered on behalf of the Environmental Policy Institute, Friends of the Earth, and the Oceanic Society which have merged to form a new global advocacy organization to address urgent environmental priorities. The Environmental Policy Institute has testified on coal slurry pipeline legislation on numerous occasions dating back to the 1970's.

In addition to the set of objections which we have raised in the past about coal slurry pipelines, today we wish to raise one new and more fundamental question about the legislation which is now being considered. The purpose of this legislation is to facilitate the putting into place of an entirely new infrastructure to deliver coal. This legislation is being proposed at the very time our nation is trying to identify solutions to the very scary problem of global warming. The burning of fossil fuels, and coal in particular, is the source of significant carbon dioxide which is warming the planet. Experts from around the world are trying to figure out how industrial nations can dramatically reduce their usage of coal to avoid the alarming effects of rapid climate change.

Does it make sense to waste the time of this Congress deliberating a measure which is headed 180 degrees in the opposite direction? Does this Committee want to encourage the burning and usage of more coal? Does this Committee want to see a very substantial capital investment in new coal delivery technology? Is this the best energy thinking which is going to emerge from the House Interior Committee? Is this the first order of energy business to emerge from the House Interior Committee this year?

At this time we also wish to put on the record again a brief description of just one of the specific environmental impacts of coal slurry pipelines. One of the most serious enviromental impacts of a slurry pipeline operation may be the difficulties encountered in the discharge of slurry waste water separated from the coal. Not only will the water be supersaturated with fine coal particles, but heavy metals, trace elements, and acid-producing compounds will also be present. Chemical additives used to prevent

-over-

corrosion in the pipeline and treatment chemicals used to remove fine coal particles from the waste water may require additional treatment which may not be available on a commercial scale such as a 25 to 50 million-ton pipeline project might require. Pipelines of that size will utilize between 7 and 14 billion gallons of water annually. Using highly saline water or treated municipal waste water may pose separate problems for waste water disposal.

When questioned about the waste water treatment technology available to the proposed coal slurry pipeline projects, the sponsors respond that they will design the pipelines to meet any water discharge standards. They say essentially:

> "Let the Environmental Protection Agency set the standards for water discharge our pipeline must operate under. We'll design the pipeline to operate in compliance. Then, we'll build and operate the line. If our treatment technology does not work or is too expensive, we'll come into the EPA and request a variance from those standards. Or, we'll wait to see if the federal government dares shut us down."

To illustrate the kinds of specific problems associated with particular pipeline proposals, we are providing for the Committee's files the comprehensive statement which the Environmental Policy Institute provided about the potential impacts of certain coal slurry pipelines coming from West Virginia into the Chesapeake Bay region.

If the Congress wants to provide any incentives for fossil fuel use, would it not be better to look to natural gas which is much more environmentally benign than either coal or oil. Per BTU of energy provided, natural gas combustion emits far less carbon dioxide. Still more preferable would be a greatly strengthened energy conservation program for the nation. The U.S. economy is twice as energy intensive as Japan's or West Germany's, and this inefficiency is reflected in higher priced products. There is no shortage of socially and environmentally beneficial energy measures which the Congress could pass. The current slurry pipeline proposal, on the other hand, is a throwback to an earlier era and makes even less sense today than it did then because of global warming. In fact, the legislation is a slap in the face to the entire set national and international initiatives to address global warming.

We urge the Committee to kill coal slurry legislation and move forward instead with far-sighted energy legislation.

* * *

ENVIRONMENTAL POLICY INSTITUTE

STATEMENT OF CHARLES FOX

Director, Chesapeake Bay Project

BEFORE

THE SPECIAL JOINT COMMITTEE
MARYLAND GENERAL ASSEMBLY
ON
A PROPOSED COAL SLURRY PIPELINE

October 9, 1984

Mr. Chairman and Members of the Committee:

We appreciate the opportunity to appear before you once again and offer our views on the proposed coal slurry pipeline. I am Chuck Fox, director of the Chesapeake Bay Project for the Environmental Policy Institute. The Institute, based in Washington, D.C., is a 501(c)(3) organization engaged in environmental research, education, and lobbying. As I stated in my earlier statement, we have been working with the coal slurry issue for nine years in the U.S. Congress.

EPI has presented three statements to the Committee on the proposed pipeline. My previous statement was submitted on September 4, 1984 and two EPI project directors offered their testimony at the public hearing on September 18, 1984. In each case, we have indicated our opposition to the project. Rather then reiterate all of our concerns, today I would like to briefly address a single issue: toxic contamination and the Chesapeake Bay.

As we have heard throughout the summer study sessions, various aspects of the coal slurry system can introduce heavy metals and other toxicants into the slurry water and into the environment. Pumps, pipes, grinding, washing, and dewatering all result in mechanical abrasion that can leach toxicants. The types and extent of toxic contamination is largely a factor of the chemical composition of the raw coal which varies substantially from seam to seam. In addition, as I discussed in my previous statement, toxicants can be directly introduced into the Bay and its tributaries by the coal piles on the shore of the Bay, by the reclamation ponds at the preparation plants, by the treatment plant at the pipeline terminus, and by a pipeline spill along the route or at the dewatering facility.

To date, the paper prepared by Lehigh University for Bechtel Petroleum Inc. is the only scientific study that has been presented to the Committee on the issue of toxic contamination. This study addressed slurry water contamination by 13 heavy metals and sulfates. As was stated in previous testimony by the Environ Corporation, the study did not address potential organic contamination that may occur during transport, nor did it include a thorough discussion of the contamination that may result from the anti-corrosive reagents that would be used in the system. In addition, Environ Corporation claimed that the heating of the slurry in the dewatering process may significantly increase the concentration of contaminants and that this was not addressed in the Lehigh Study. To these crucial shortcomings in the scope of the Lehigh study, I would add that it did not address the various chemical compounds that could be formed with the heavy metals, each with its own reactive and potentially dangerous properties. Finally, the Lehigh Study did not address the potential impacts of the contaminants on a water body like the Chesapeake Bay.

It is this point that I'd like to address further, beginning with a brief look at the Great Lakes.

Efforts to reverse the environmental degradation of the Great Lakes offer valuable insight for the efforts on the Chesapeake Bay. Almost ten years ago, nutrient enrichment was thought to be the largest problem facing the Great Lakes. Subsequently, bordering states have enacted various measures to control nutrient loadings to the Lakes with great success. Today, over-enrichment is not viewed as a major problem.

However, scientists on the Great Lakes are learning that toxic contamination has plagued the Lakes for years. Moreover, they now agree that it is the single most important problem threatening the Lakes' resources. Recent studies with Cadmium, for example, have shown that zooplankton can suffer reproductive failures when exposed to levels as low as one part per billion. In addition, they have proven that zooplankton can accumulate and concentrate Cadmium and pass the elevated levels up the food chain. Zooplankton are a major food source for many species found in both the Great Lakes and the Chesapeake Bay.

Scientists have termed toxic contamination the "invisible menace" in the Great Lakes. However, scientists readily admit that the multitude of potential toxicants and the effects on specific organisms has left them without a comprehensive understanding of toxic contamination in the Great Lakes.

In the Chesapeake, we have a similar situation. For example, only in the last few months have we learned that minute concentrations of Aluminum can have disastrous impacts on striped bass larvae. Given the experience of the Great Lakes, and the potentially tremendous impact on the Bay's resources, it seems only prudent that we limit the potential for toxic contamination.

The attached chart is a draft prepared by the U.S. Fish and Wildlife Service (FWS) in Annapolis. It shows very clearly the impacts of heavy metals, pesticides, and other toxicants on Bay species. It is, however, very limited in its description of specific toxic/species relationships. As stated earlier, we have little comprehensive information on these relationships.

Three brief examples will highlight the toxic concerns of the proposed pipeline. (For convenience, I have also attached the summary found in the Lehigh Study)

The Lehigh Study found that Copper concentration in the slurry water could be .04 parts per million (ppm) and that treatment for public water supplies would not be required while treatment for marine discharge may be required. The chart prepared by the FWS suggests that one-quarter of this concentration, or .01 ppm, will retard egg hatching in striped bass over a 48-hour period. For Zinc, the FWS chart shows a similar concentration having similar effects on striped bass while the Lehigh Study showed concentrations of .09 ppm and .96 ppm -- nine and ninety-six times the concentration necessary to retard egg hatching.

Total Chromium concentrations in the Lehigh Study were .22 ppm and .151 ppm. In the FWS chart, it is stated that .05 ppm of Chromium results in 6 percent mortality in the American Oyster over 20 weeks.

In addition to the impacts of heavy metals, heavy metal compounds can have substantially different effects on the Bay ecosystem. As seen in the FWS chart, Cadmium chloride and Cadmium nitrate are significantly more toxic than free Cadmium. The potential for vast numbers of permutations for heavy metal compounds is fantastic but little is known about the environmental impacts. More importantly, no evidence has been presented to the Committee on the ability of the identified slurry toxicants to form hazardous compounds.

The potential for Bay species to be affected by toxicants is tremendous. In shallow water, many species feed on microscopic plants (phytoplankton) and animals (zooplankton) which may concentrate and accumulate the toxicants. The microscopic organisms can pass the contamination up the food chain resulting in bio-concentration in top level species like striped bass. In the sediments, hundreds of different species of worms, clams and amphipods circulate the sediments, re-introducing the toxicants to the ecosystem.

CONCLUSION

It is well known that toxic contamination in the Chesapeake Bay is severe. The six-year EPA study of the Bay found over 300 organic compounds (mostly toxic) in the water and sediments of the Bay, up to 480 organic compounds in Baltimore Harbor, and excessive concentrations of heavy metals. However, the EPA study emphasized repeatedly that little is known about the effects of specific chemical compounds on Bay species. Moreover, the study found that much less is known about the cumulative effects of chemical compounds found in the "chemical brew" which exists in the Bay and its sediments.

The proposed coal slurry pipeline has the potential to increase toxic loadings to the Bay and it tributaries. It is our view that these chances should not be taken. We have continually maintained that existing transportation networks are more than adequate to handle the expected growth in coal transport in the foreseeable future. The experience of the Great Lakes and the growing body of knowledge of the impacts of toxics on the Bay suggest that the problem of toxic contamination may be a significant emerging issue. We feel strongly that all potential sources of toxicants be minimized.

TESTIMONY

OF THE

INTERNATIONAL UNION OF OPERATING ENGINEERS

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

APRIL 20, 1989

International Union of Operating Engineers
1125 SEVENTEENTH STREET NORTHWEST ★ WASHINGTON, D. C. 20036
AFFILIATED WITH THE AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS
OFFICE OF GENERAL PRESIDENT • (202) 429-9100

The International Union of Operating Engineers, representing over 360,000 workers primarily in the construction industry throughout the United States and Canada, has been a long-time supporter of coal slurry pipelines. We support **S. 318, The Coal Distribution and Utilization Act** and commend Chairman J. Bennett Johnston for his timely introduction of this vital piece of legislation.

In previous sessions of Congress, the Operating Engineers have been at the forefront of efforts to obtain Federal eminent domain privileges which would allow the private sector to determine, on a cost effective, competitive basis, the feasibility of this mode of coal transportation in particular markets. With our counterparts in the building and construction crafts, electrical generating utilities, engineering and construction firms, as well as pipeline transmission companies, we will continue to demonstrate the economic, energy and environmental soundness of coal slurry pipelines. The introduction of S. 318 signals the renewal of our efforts on this critical energy issue.

While not directly testifying at the Committee hearings on S. 318,) the International Union of Operating Engineers desires to associate ourselves with the testimony of the proponents of this bill -- in particular the remarks and rationale of the Building and Construction Trades Department, AFL-CIO, and the Slurry Technology Association.

Coal slurry pipelines offer an alternative long-haul transportation system to the railroads. Developers of proposed coal pipelines have sought Federal eminent domain authority to ease the acquisition of rights-of-way, particularly since pipeline routes must frequently cross railways and railroad controlled property and railroads have refused to permit coal pipelines right-of-way. Legislation has been introduced in the past several Congresses to give coal pipelines eminent domain authority, but strong opposition by the railroads has resulted in killing these bills.

Legislation previously considered by the Congress has included a mechanism by which an interstate coal pipeline can prove it is in the national interest and thereby obtain the right of eminent domain. Proposed legislation has included eminent domain provisions, strict state water rights protection language, regulatory language, and safety provisions. Various proposed legislation has considered the ICC, FERC, and the Secretary of the Interior as the entity which would make the national interest determination.

Railroads and oil pipelines enjoyed federal eminent domain during the days in which they were being constructed: natural gas pipelines and interstate electric transmission lines still retain the right of federal eminent domain.

The sponsors of several proposed pipeline projects, most notably the ETSI System, have attempted to gain the right of access, or eminent domain, on a state-by-state basis either through the state legislatures or through the courts. The process is time consuming and expensive and there is no guarantee that state laws will mesh and allow an interstate system to be constructed.

After ten years and sixty-seven lawsuits, as ETSI was reaching the stage where building was feasible, the system was successfully outbid for its coal traffic by lower rail rates and the project was dropped. The cost of moving coal by this pipeline, had ETSI had federal eminent domain and been built where originally proposed, most likely would have been lower than rail rates for the comparable shipments. The utility shipper stated that the contract rail rate compared to the then posted rail tariff provided transportation savings of $16.5 billion over a twenty year contract life - a tremendous cost savings to consumers in that region of the country.

Coal pipelines would offer competition to the railroads for export coal shipments: presumably any economic alternative shipping system would have the effect of increasing competition and generally lowering inland transportation costs. In fact, the existence of competition created by the enactment of federal eminent domain legislation would tend to moderate rail rates whether specific coal pipelines were actually built or not.

The Black Mesa Pipeline, the one long distance coal pipeline operating in the U. S., transports approximately five million tons per year for 273 miles from Kayenta, Arizona, to the Mohave Power Plant in southern Nevada. The Black Mesa pipeline, which started operation in late 1969, has had a 99% deliverability capacity and is delivering its coal at 1.4 cents/ton mile.

Underscoring the potential savings to utility ratepayers from coal slurry pipelines is a recent study conducted by the Energy Information Administration of the U. S. Department of Energy (April, 1985). Using computer modeling techniques, the EIA concluded that "coal pipeline rates would be considerably lower" than rail rates. The study found that the construction of four coal pipelines could save electric utilities and consumers nearly $1 billion by 1995. Additionally, the report found "railroad revenues from coal carriage would still be almost 60 percent higher and railroad ton-miles nearly 30 percent higher in 1995 than in 1984."

An interesting advancement in coal slurry technology is the development of coal slurry fuels: a heavy mixture of coal, water, and small amounts of additives which can be direct-fired without dewatering. Coal slurry fuels are presently being test-fired worldwide and will provide additional economic incentives to the use of integrated systems piping a coal slurry fuel to its destination, presumably an electric power plant or a port, where the coal slurry fuel can be handled with the ease of handling petroleum products. There is presently one long distance coal slurry fueled pipeline completing construction (162 miles long) in the Soviet Union and plans for two $5-10 billion coal-water slurry pipelines that would stretch 2,500 km from central Siberia to the Ural mountains. Plans for additional utilization of coal slurry fuel pipelines are on the drawing board in China, Japan, and India. Additionally, there are plans for a coarse coal receiving facility at the Port of Rotterdam and construction has been completed for coal slurry tankers by the Japanese.

The legislation in Congress has never provided financial incentives such as loan guarantees for coal pipeline construction, nor do the owners of proposed projects desire it. The legislation simply allows coal pipelines the right to enter the market place and to compete against the railroads and other carriers for coal haulage business. The use of private capital rather than federal funds is an important consideration in this era of tight budgetary constraints.

Without doubt, the construction of coal pipelines for use domestically and for export has been delayed by the temporary low prices of oil products. However, oil prices have been steadily rising and most producers of coal slurry fuels feel that there are markets for their products when the price of oil reaches $15-20/bbl. \Passage of eminent domain legislation will simply create a climate in which those pipelines that are economically feasible can put together a project; without such legislation we cannot expect corporate interests to pursue projects after the costly ETSI experience mentioned above.

The options are clear: if we continue to allow railroads to block potential competition by doing nothing, major coal pipeline systems will not be built in the U. S. In order for coal pipelines to obtain their rights-of-way and enter the market place, Congress must enact eminent domain legislation. Without Congressional action, we could well observe foreign governments benefitting from a technological innovation that we do not allow ourselves to enjoy. Witness the recent completion of a major slurry line in he Soviet Union. Clearly it is in the best interest of the U. S. to have the option available to pursue alternative coal transportation mechanisms and thereby increase domestic and foreign consumption of U. S. coal.

As can be seen from the foregoing examination of some of the benefits of coal slurry pipelines, a strong argument can be made for the importance and desirability of Federal eminent domain legislation. While our immediate interest is in increased job opportunities which an expanding coal market will provide for Operating Engineers and other workers in the coal extraction and transportation industries, it should be noted by all objective observers that S. 318 is carefully crafted to address environmental, water usage and Federal budgetary concerns. Simply put, vested economic interests - namely, railroads - should not be permitted to obstruct legitimate and fair competition for the haulage of coal. The International Union of Operating Engineers urges a complete and careful review of S. 318 by each United States Senator. We are confident that such a review will result in the passage of S. 318 into law.

* * *

STATEMENT
OF
MICHAEL J. HENKE
ATTORNEY FOR
ENERGY TRANSPORTATION SYSTEMS, INC. (ETSI)

ON

S. 318

BEFORE THE

COMMITTEE ON ENERGY AND NATURAL RESOURCES

UNITED STATES SENATE

APRIL 20, 1989

STATEMENT
OF
MICHAEL J. HENKE
ATTORNEY FOR
ENERGY TRANSPORTATION SYSTEMS, INC. (ETSI)
ON
S. 318
BEFORE THE
COMMITTEE ON ENERGY AND NATURAL RESOURCES
UNITED STATES SENATE
APRIL 20, 1989

Mr. Chairman and Members of the Committee, I appreciate the opportunity to present this statement on S. 318.

I am a partner in Vinson & Elkins, a law firm that has represented Energy Transportation Systems, Inc. and the ETSI Pipeline Project, a joint venture (ETSI), since the early 1980's. Most recently, we were counsel for ETSI in ETSI Pipeline Project, et al. v. Burlington Northern, Inc., et al., Civ. No. B-84-979-CA (E.D. Tex.), which has just resulted in a large judgment in ETSI's favor.

OVERVIEW OF ETSI v. BNI

In 1973 Bechtel, Lehman Brothers, and Middle South Utilities (holding company for Arkansas Power & Light or AP&L) initiated efforts to construct ETSI, a coal slurry pipeline that would run from the Powder River Basin in Wyoming to the sites of new coal-fired generating facilities then being constructed by AP&L near Redfield and Independence, Arkansas. On July 31, 1984, having spent more than $140 million, ETSI terminated its efforts, announcing that "increased costs, uncertainties and delays" resulting from "protracted railroad opposition" had killed the project.

Just over two months after its demise, ETSI filed an antitrust treble damage action that ultimately included as defendants six major western railroads: Burlington Northern, Union Pacific, Santa Fe, Missouri Pacific, Chicago & North Western, and Kansas City Southern. The complaint alleged that the six defendant railroads had conspired, over a ten-and-one-half-year period, to obstruct, delay, and ultimately prevent construction of the pipeline. In due course, ETSI was joined by AP&L, Houston Lighting & Power (HL&P), and Lower Colorado River Authority (LCRA) as co-plaintiffs.

During the next four years, both sides engaged in voluminous discovery efforts. More than 300 depositions were taken, including approximately 85 depositions of top-ranking railroad officials. Over two million pages of documents were produced, including well in excess of a million pages of internal railroad correspondence, memoranda, analyses, and studies.

The highlight of the discovery process was the court's ruling on ETSI's so-called "crime-fraud" motion. The railroads had withheld thousands of documents on grounds of privilege. Finding "clear and convincing evidence" that the railroads had engaged in an illegal conspiracy and unlawful sham litigation against ETSI, the court rejected the privilege claims and ordered the railroads to produce the documents they had been withholding. See Attachment A; see also In re Burlington Northern, Inc., 822 F.2d 518 (5th Cir.), reh'g en banc denied, 827 F.2d 768 (1987), cert. denied sub nom., Union Pacific R. Co. v. ETSI, 108 S.Ct. 701 (1988). Those documents proved to contain critical evidence of the motives, strategy, and tactics employed by the railroads during their ten-year struggle against ETSI.

Ultimately, five of the six defendants settled with both ETSI and co-plaintiff HL&P, paying a total of almost $285 million to ETSI. Co-plaintiffs AP&L and LCRA settled separately with all six defendants.

In January of 1989 ETSI and HL&P went to trial against the remaining railroad, the Santa Fe. The trial continued for nine weeks before Judge Robert M. Parker in Beaumont, Texas.

On March 3, 1989 Judge Parker entered a directed verdict that the defendant railroads, including Santa Fe, had engaged in an illegal conspiracy to delay, hinder, or stop ETSI. He also directed a verdict that the railroad conspiracy was an unreasonable restraint of trade and that it affected interstate commerce. A week later the jury returned a verdict for ETSI in the amount of $345 million before trebling. The jury's verdict was based upon its finding that the illegal railroad conspiracy was a material cause of injury to ETSI.

As provided by law, the court trebled the jury's verdict, to produce a damage figure of $1.035 billion. From that amount, the court subtracted the approximately $285 million in settlements previously received by ETSI. Then on May 8, 1989, the court entered its Final Judgment in the amount of $750.1 million against Santa Fe and its holding company, the Santa Fe Southern Pacific Co. See Attachment B.

SIGNIFICANCE OF THE ETSI CASE FOR THIS LEGISLATION

ETSI v. BNI concerned one pipeline's struggle against concerted railroad opposition to coal slurry. Since that proposal was the most advanced, and the best financed, it drew the bulk of the railroads' fire. Accordingly, the record of the ETSI case provides a good picture of both the economic issues involved in the slurry battle and the strategy and tactics employed by the railroads in opposing slurry. As a consequence, the ETSI record affords insights that may be of use to this Committee in evaluating the legislation before it.

Economics

The record in the ETSI case demonstrates that coal slurry pipelines are more economic than rail for moving coal in large quantities over long distances, and that the railroads so recognized. For example, a National Economic Research Associates (NERA) study presented at trial by Dr. Alfred E. Kahn, ETSI's expert economic witness, reviewed eighteen comprehensive studies of the relative economics of slurry and rail. Twelve of those studies concluded that slurry is clearly more economic than rail; five concluded that slurry is probably more economic than rail; and only one found that rail is more economic than slurry. (Interestingly, documents from the railroads' files disclosed that the railroads themselves viewed the minority study as flawed.) As early as 1974, Burlington Northern slurry economics analysts advised BN's top management:

> "Clearly there is a point at which a high volume slurry line can operate at costs which are less than those of the railroad. Of great importance is the fact that after the first heavy capital cost the slurry line is insulated against anticipated increases in labor costs with which the railroads will have to deal and which under the escalator clause will become an element of the rate paid by the utility."

Notwithstanding the economic superiority of slurry pipelines as a means of moving large quantities of coal long distances, the Black Mesa Pipeline is the only operating coal slurry pipeline in the United States today. That pipeline traverses only 273 miles and moves relatively small quantities of coal. If pipelines are in fact a more economic means of moving coal, one may fairly inquire why Black Mesa is the only operating coal slurry pipeline in the United States today.

The ETSI verdict and judgment hold that a principal reason ETSI is not currently operating is that a railroad conspiracy, formed in 1974, delayed, hindered, and ultimately stopped the pipeline. Though the verdict and judgment addressed only the ETSI situation, the evidence in the case indicates that the conspiracy was aimed at preventing construction of all coal slurry pipelines.

The ETSI record also spells out the economic motive for the railroad conspiracy. A four-year study of internal railroad records concerning rates, costs, and profits was conducted by NERA, under the leadership of Dr. Kahn. The study concluded that, during the ten-year period from 1974 to 1984, the six defendant railroads realized aggregate "markups" -- in effect monopoly profits -- of approximately $1.4 billion on the movement of Powder River Basin coal to utility customers that ETSI sought to serve. See Attachment C. Those profits were over and above the amounts that the railroads' own records show were required to cover long-run incremental costs, including targeted returns on invested capital.

Dr. Kahn testified that preserving those monopoly profits provided a powerful incentive for the railroads to oppose competition from ETSI and other coal slurry pipelines.

Railroad Strategy

After hearing nine weeks of testimony, Judge Parker directed a verdict for ETSI on the key conspiracy issue, finding (according to the legal test) that reasonable men could not differ about the existence of an illegal conspiracy to delay, hinder, or stop ETSI. Each of the six defendant railroads was expressly found to have been a participant in that conspiracy.

The strategy of the conspiracy was to defeat ETSI and other coal slurry pipelines by creating "risk, uncertainty, and delay." In a truly remarkable document, an outside consultant hired by the Union Pacific Railroad counseled as follows:

> "Suggested by the above thumbnail sketch are the softspots in the slurry pipeline challenge: to wit -- risk, uncertainty, and delay. If the pipeline developers cannot reliably assure prospective customers of service on a predictable and believable schedule, they will be severely hampered in their negotiation of requisite long-term revenue-generating contracts; and without such contracts their ability to raise capital, through private placements or public offerings, is materially impeded. Delay, of a sort associated with complex legal procedures calculated to expose the many vital issues to thorough examination, is thus a major

> consideration. Delay equals uncertainty and enhanced risk, the fundamental enemies of investment."

Shown the consultant's proposal, the senior legal officer of the Union Pacific acknowledged that it correctly stated not only the strategy of the Union Pacific but that of the entire rail industry. He termed it a strategy to "delay and time constrain the development of coal-slurry pipelines," and conceded that the strategy had been pursued by the railroad industry since 1974.

Right-of-Way Boycott

The principal railroad vehicle for injecting risk, uncertainty, and delay -- and virtually the sole vehicle from 1974 to about 1979 -- was the concerted denial of railroad crossings, a classic group boycott. On May 3, 1974, the Presidents of Burlington Northern and Chicago & North Western sat down at a table and explicitly agreed that both railroads would deny crossings to ETSI and that if either railroad changed its mind on that agreement, it would inform the other. These two railroads even went so far as to memorialize their agreement in memoranda prepared by the respective general counsels.

Later the BN-CNW agreement was expanded to include the other defendant railroads. Thus, when ETSI offered $1,500 per crossing for the railroad crossings it needed, BN, UP, and CNW exchanged blind copies of their letters refusing ETSI's offer. And Santa Fe, wishing to assure that it did not get out of step with the other railroads, authorized one of its officers to poll five other railroads to assure their continued refusal to grant crossings to ETSI. Having satisfied itself that the boycott was intact, Santa Fe then declined to negotiate with ETSI.

Faced with a concerted refusal to grant crossings voluntarily, ETSI devised an alternative strategy -- the so-called "window program." ETSI first identified "windows" in the railroad lines -- places where the railroads held their rights-of-way only as an easement rather than in fee. The railroads uniformly refused to acknowledge ETSI's right to cross at these windows or easement locations, notwithstanding clear legal precedent in ETSI's favor in most jurisdictions. As a result, ETSI was required to file 69 separate lawsuits to confirm its right to cross at the window locations. The railroads mounted what they called a "joint defense," answering every one of those 69 lawsuits and defending many of them.

Documents from the railroads' files (produced as a result of the court's crime-fraud ruling) make clear that the railroads' strategy in opposing ETSI's window suits was, in the words of a lawyer for Kansas City Southern, "to delay every way we can." In another notable letter, a lawyer representing the Burlington Northern in Wyoming bragged that he had "ETSI in court for approximately one and a half years" even though he was "without any proof" to support his side of the lawsuit.

The last of the original window lawsuits was decided by the Oklahoma Supreme Court at the end of 1981, five-and-a-half years after the initial suit was filed in mid-1976. During those five-and-a-half years, ETSI won 69 straight lawsuits at the trial court level and prevailed on appeals in the Eighth Circuit, Tenth Circuit, and Oklahoma Supreme Court. By the end of the original window program, there can have been no doubt about ETSI's ability to force crossings at all easement locations.

Nonetheless, even in the 1980's, each of the six defendant railroads continued to delay granting crossings at easement locations. For example, ETSI was forced to file three lawsuits against Santa Fe in Oklahoma in 1982; a lawsuit against BN in Arkansas was not resolved until June of 1983.

Moreover, since the window approach had no application to fee crossings, the railroads continued their previous policy of denying fee-owned crossings. In fact, by the time ETSI went out of business at the end of July 1984, not one of the six defendant railroads had ever intentionally granted a fee crossing to ETSI. The chief executive officers of Union Pacific and Burlington Northern explicitly testified that their railroads' policy was to deny all fee crossing requests by coal slurry pipelines.

It goes without saying that, had federal eminent domain authority been available, the railroads would have been unable to use crossing denials as a means of hindering and delaying ETSI. Thus, the principal strategy of the railroad conspiracy would have been removed.

CONCLUSION

If one assumes that the United States economy is best served by having the most efficient means of transportation provide transportation services, then there is a national policy interest in allowing slurry pipelines to compete on an even footing with railroads. At the very least this means that coal pipelines should be given eminent domain authority. The ETSI case demonstrates that such authority would prevent railroads from utilizing one of the principal vehicles they have historically employed to forestall construction of slurry pipelines.

ATTACHMENT A

FILED
U. S. DISTRICT COURT
EASTERN DISTRICT OF TEXAS

OCT 2 1987

MURRAY L. HARRIS, CLERK
By
Deputy

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
BEAUMONT DIVISION

RECEIVED
OCT 5 1987
MICHAEL J. HENKE

§
ETSI PIPELINE PROJECT, A §
JOINT VENTURE and ENERGY §
TRANSPORTATION SYSTEM, INC. §
§
VS. § B-84-979-CA
§
BURLINGTON NORTHERN, ET AL. §

Findings of Fact, Conclusions of Law, and Order of the Court

§1 INTRODUCTION

This is an antitrust suit. The motion before the court is plaintiff ETSI's Renewal of its Motion for Production of Documents to which the defendants have asserted a Noerr-Pennington defense, attorney-client privilege, and work product defenses. The motion has been briefed and over-briefed. It was fully argued at a hearing held September 28, 1987. The matter is considered under guidelines established by the United States Court of Appeals for the Fifth Circuit. In re Burlington Northern, 822 F.2d 518 (5th Cir. 1987).

§2 PLAINTIFFS' BURDEN OF PROOF

Plaintiffs have previously established a prima facie case that a conspiracy existed to thwart plaintiffs' attempt to build a coal slurry pipeline from northern coal producing states to serve customers in the southwest in violation of the antitrust laws. A prima facie case has been made that each defendant railroad was a member of that conspiracy. What the motion at bar addresses is documents that the plaintiffs claim were made in the course and furtherance of the conspiracy.

For the plaintiffs to prevail, it must be proven that the documents in question, whose genesis was in litigation and in activities before administrative agencies, were a part of a sham. Proof of a sham requires a prima facie showing that the litigation was undertaken without a genuine desire for judicial relief as a significant motivating factor, or that there was no reasonable expectation of judicial relief, or that there was no reasonable basis for party standing. In re Burlington Northern, 822 F.2d 518, 534 (5th Cir. 1987).

The initial question for this court to address concerns the meaning of prima facie proof in the context of the motion presently before the court. Plaintiffs forcefully argue that prima facie proof, as used by the Fifth Circuit in its order, is equatable to the analysis required in determining whether an issue of fact exists sufficient to go to a jury. The court disagrees. The concept of prima facie proof is much used and occasionally abused. It can mean different degrees of proof under different circumstances. To require merely sufficient evidence to raise a fact issue does a disservice to the Noerr-Pennington doctrine. In order for a moving party to pierce the Noerr-Pennington shield surrounding petitioning activity, the proof of sham must be sufficient to overcome a presumption of validity. Plaintiffs must come to grips with Coastal States' recognition that invariably there exists a multiplicity of motivations giving rise to judicial litigation or agency petitioning. See, Coastal States Marketing, Inc. v. Hunt, 694 F.2d 1358, 1371 (5th Cir. 1983). Ultimate success may not be achieved until the plaintiffs prove a negative -- that there was no genuine desire for judicial relief as a significant motivating factor. Defendants have argued correctly that the burden is an onerous one indeed.

Prima facie proof means that a party has presented sufficient proof to be entitled to proceed. In the context of its use in the motion before the court, that is in order for the plaintiffs to overcome the presumption of validity and prove the negative--that defendants were without a genuine desire for judicial relief as a significant motivating factor, ETSI can only make a prima facie case if its proof is both clear and convincing. In Addington v. Texas, 441 U.S. 418, 424, 99 S.Ct. 1804, 1808, 60 L.Ed.2d 323, 329 (1979), former Chief Justice Burger noted that the traditional burden of proof in a civil fraud case was by the intermediate standard of clear and convincing evidence. The fact that the common law standard was by clear and convincing evidence further reinforces this court's opinion that this is the proper standard in a scenario such as this where important interests are at stake. The plaintiff's proof in this case is clear and convincing.

A preponderance analysis is inappropriate in the sense that it assumes all the evidence is before the fact finder, which is not the case here. However, based on available evidence, a preponderance analysis in terms of whether the plaintiffs have established the fact to be "more likely true than not true" is both appropriate and proved. Cf. Herman & MacLean v. Huddleston, 459 U.S. 375, 103 S.Ct. 683, 691-92, 74 L.Ed.2d 548 (1983)(lower preponderance of the evidence standard appropriate in statutory securities fraud case). Certainly, sufficient evidence under either standard is available to the court for the following Findings of Fact.

§3 FINDINGS OF FACT

1. The defendant railroads engaged in each of the "window" lawsuits, see attached Exhibit 1, without a genuine desire for judicial relief as a significant motivating factor.

2. The defendant railroads' desire to influence and obtain judicial relief throughout each of the "window" lawsuits, see attached Exhibit 1, was insignificant, incidental, and not a significant motivating factor.

3. The railroad defendants' primary motive in each of the "window" lawsuits, see attached Exhibit 1, was to harm a competitor through the mere invocation and maintenance of the judicial process.

4. Kansas City Southern initiated and engaged in Kansas City Southern Railway v. Andrews, CV82-L-443 (D. Neb. 1984), sub nom., Missouri v. Andrews, 586 F.Supp. 1268 (D. Neb. 1984), aff'd, 787 F.2d 270 (8th Cir. 1986), cert. granted, ___ U.S. ___, 107 S.Ct. 1346, 94 L. Ed. 2d 517 (1987) without a genuine desire for judicial relief as a significant motivating factor.

5. Kansas City Southern's desire to influence and obtain judicial relief in Kansas City Southern Railway v. Andrews, CV82-L-443 (D. Neb. 1984), sub nom., Missouri v. Andrews, 586 F.Supp. 1268 (D. Neb. 1984), aff'd, 787 F.2d 270 (8th Cir. 1986), cert. granted, ___ U.S. ___, 107 S.Ct. 1346, 94 L. Ed. 2d 517 (1987) was insignificant, incidental, and not a significant motivating factor.

6. Kansas City Southern's primary motive in Kansas City Southern Railway v. Andrews, CV82-L-443 (D. Neb. 1984) was to harm a competitor through the mere invocation and maintenance of the judicial process.

7. Union Pacific, although not named as a formal party to the suit, initiated and facilitated Missouri v. Andrews, (CV82-L-442) 586 F.Supp. 1268 (D. Neb. 1984), aff'd, 787 F.2d 270 (8th Cir. 1986), cert. granted, ____ U.S. ____, 107 S.Ct. 1346, 94 L. Ed. 2d 517 (1987) without a genuine desire for judicial relief as a significant motivating factor.

8. Although not named as a formal party to the suit, Union Pacific's primary motive in Missouri v. Andrews, (CV82-L-442) 586 F.Supp. 1268 (D. Neb. 1984), aff'd, 787 F.2d 270 (8th Cir. 1986), cert. granted, ____ U.S. ____, 107 S.Ct. 1346, 94 L. Ed. 2d 517 (1987) was to harm a competitor through the mere invocation and maintenance of the judicial process.

9. The other railroad defendants represented to this court that they were not involved in Kansas City Southern Railway v. Andrews, CV82-L-443 (D. Neb. 1984) or Missouri v. Andrews, CV82-L-442 (D. Neb. 1984), and therefore any documents they may have relating or referring to the Andrews litigation would not be protected by Noerr-Pennington, the attorney-client privilege, or the work product privilege.

10. Burlington Northern, Union Pacific, and Kansas City Southern engaged in numerous attempts to stir up opposition on the part of other entities with regard to the granting of permits sought by ETSI from various administrative bodies.

11. All of the railroad defendants engaged in multiple efforts to oppose the granting of permits sought by ETSI from various administrative agencies.

12. The petitioning activities of Kansas City Southern with regard to the granting of permits sought by ETSI from various administrative bodies were a sham.

13. The defendants sole significant motivating factor in the "window" lawsuits, the Andrews litigation, and the administrative

petitioning activities was anticompetitive. The sole significant motivation was to "kill" the coal slurry pipeline project by delay facilitated through the mere invocation and maintenance of the judicial and administrative process.

14. At this time, the court finds no need and therefore makes no finding with regard as to whether the railroad defendants may have had a reasonable expectation of judicial relief in either the "window" or Andrews litigation.

15. At this time, the court finds no need and therefore makes no finding with regard as to whether the railroad defendants may have had a reasonable basis for party standing in the Andrews litigation.

§4 CONCLUSIONS OF LAW

1. The plaintiffs (collectively referred to as ETSI) have sustained their burden to make a "prima facie" showing that the railroad defendants engaged in each of the "window" lawsuits without a genuine desire for judicial relief as a significant motivating factor. The court specifically makes this finding with regard to each of the "window" lawsuits, see Exhibit 1 which is hereby incorporated by reference for purposes of this opinion and order. Since the railroad defendants engaged in each of the "window" lawsuits without a genuine desire for judicial relief as a significant motivating factor, their participation in each of these "window" suits constituted a sham. The Noerr-Pennington doctrine offers no protection to sham activities. Accordingly, the crime-fraud exception to the attorney-client and work product privileges allows full discovery of any matters relating or referring to the individual "window" lawsuits from each defendant railroad.

2. The plaintiffs have sustained their burden to make a "prima facie" showing that Kansas City Southern and Union Pacific engaged in and facilitated the Andrews lawsuits without a genuine desire for judicial relief as a significant motivating factor. Since these defendants engaged in each of the Andrews lawsuits without a genuine desire for judicial relief as a significant motivating factor, their participation in each of these suits constituted a sham. The fact that Union Pacific was not a formal party to Missouri v. Andrews is of no consequence. The Noerr-Pennington doctrine offers no protection to sham activities. Accordingly, the crime-fraud exception to the attorney-client and work product privileges allow full discovery of any matters relating or referring to the individual Andrews lawsuits from Kansas City Southern and Union Pacific. Since the other railroad defendants represented to this court that they were not involved in Kansas City Southern Railway v. Andrews (CV82-L-443) or Missouri v. Andrews (CV82-L-442), any documents that these defendants may have relating or referring to the Andrews litigation are not protected from discovery by Noerr-Pennington, the attorney-client privilege, or the work product privilege.

3. The plaintiffs have sustained their burden to make a "prima facie" showing that the anticompetitive activities of Burlington Northern, Union Pacific, and Kansas City Southern, designed to stir up opposition to various administrative permits sought by ETSI, were not sufficiently motivated by a genuine desire for relief as a significant motivating factor. Therefore, any documents and correspondence between these particular defendants and their attorneys come within the crime-fraud exception to the two asserted privileges. Furthermore, prima facie evidence connecting each defendant with an effort to delay the administrative process justifies the invocation of the crime-fraud exception with respect to all of the

railroad defendants.

4. The plaintiffs have sustained their burden to make a prima facie showing that the petitioning activities of the Kansas City Southern in connection with administrative hearings regarding permits sought by ETSI were sham. The Noerr-Pennington doctrine offers no protection for sham petitioning, and therefore the crime-fraud exception becomes applicable. Consequently, the documents and correspondence between Kansas City Southern and its lawyers regarding these administrative hearings during the course of, or prior to, the termination of such petitioning activities are subject to discovery.

5. The states of Iowa, Missouri, and Nebraska may validly assert the attorney-client privilege to the extent that confidentiality was maintained.

SS ORDER OF THE COURT

1. Pursuant to the preceding Findings of Fact and Conclusions of Law, IT IS HEREBY ORDERED, ADJUDGED, AND DECREED that each of the railroad defendants produce all documents for which an attorney-client or work product privilege has been claimed which relate, refer to, mention, or concern the following:

A. Each of the individual lawsuits commonly known as the "window" litigation, see attached Exhibit 1;

B. Each of the individual lawsuits commonly known as the Andrews litigation;

C. Any application or filing by ETSI before an administrative agency (federal, state, or local) for a permit or authorization concerning the coal slurry pipeline.

2. Any document claimed as privileged by the states of Iowa, Missouri, or Nebraska shall be submitted to this court for an *in camera* inspection.

3. Because of the ongoing nature of the *Andrews* litigation, all documents produced by any party which refer or relate to the *Andrews* litigation shall be subject to *in camera* inspection by this court. Similar to a Fed. R. Evid. 403 analysis, the court will consider whether the probative value of the evidence is substantially outweighed by the danger of unfair prejudice to the defendants. After engaging in this balancing analysis, the court shall then determine whether such evidence is discoverable.

4. All other discovery matters are hereby assigned to Magistrate Mike Bradford pending further orders of this court.

SIGNED and ENTERED this 2nd day of October, 1987

ROBERT M. PARKER
United States District Judge

B-84-949-CA

Exhibit 1

WINDOW LITIGATION

Style of Case	Cause No	Court
Energy Transportation Systems, Inc., a Delaware corporation v. Chicago Northwestern Transportation Company	C-76-131	United States District Court for the District of Wyoming
Energy Transportation Systems, Inc., a Delaware corporation v. Burlington Northern, Inc.	C-76-130	United States District Court for the District of Wyoming
Energy Transportation Systems, Inc., a Delaware corporation v. Union Pacific Railroad Company, a Utah corporation	C-76-129B	United States District Court for the District of Wyoming
Energy Transportation Systems, Inc., a Delaware corporation v. Burlington Northern, Inc., a Delaware corporation	CV-77-L-164	United States District Court for the District of Nebraska
Energy Transportation Systems,, Inc., a Delaware corporation v. Union Pacific Railroad Company, a Utah corporation	5911	District Court of Morrill County, Nebraska
Energy Transportation Systems, Inc., a Delaware corporation and Board of Educational Lands and Funds of the State of Nebraska v. Union Pacific Railroad Company, a Utah corporation	CV-77-L-167	United States District Court for the District of Nebraska
	79-1259	United States Court of Appeals, 8th Circuit
Energy Transportation Systems, Inc., a Delaware corporation v. Burlington Northern, Inc., a Delaware corporation	CV-77-L-165	United States District Court for the District of Nebraska
Energy Transportation Systems, Inc., a Delaware corporation v. Burlington Northern, Inc., a Delaware corporation	CV-77-L-166	United States District Court for the District of Nebraska
Energy Transportation Systems, Inc., a Delaware corporation v. Burlington Northern, Inc., a Delaware corporation	77-C-10	17th Judicial District Court, Rawlins County, Kansas, Civil Department

Energy Transportation Systems, Inc., a Delaware corporation v. Burlington Northern, Inc., a Delaware corporation	79-C-9	17th Judicial District Court, Decatur County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Union Pacific Railroad Company, a Utah corporation	77-C-13	15th Judicial District Court, Sheridan County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Union Pacific Railroad Company, a Utah corporation	79-C-10	15th Judicial District Court, Graham County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Union Pacific Railroad Company, a Utah corporation	77-C-6	23rd Judicial District Court, Trego County, Kansas, Civil Department
	77-4116	United States District Court for the District of Kansas
	78-1680	10th Circuit Court of Appeals
Energy Transportation Systems, Inc., a Delaware corporation v. Union Pacific Railroad Company, a Utah corporation	79-C-11	State District Court of Trego County, Kansas
	79-4079	United States District Court, Kansas
Energy Transportation Systems, Inc., a Delaware corportation v. Union Pacific Railroad Company, a Utah corporation, et al.	5509	15th Judicial District Court, Thomas County, Kansas, Civil Department
Energy Transportation Systems,, Inc., a Delaware corporation v. Union Pacific Railroad Company, a Utah corporation	77-C-16	District Court, Gove County, Kansas
	77-4151	United States District Court for the District Kansas
	78-1681	10th United States

		Circuit Court of Appeals
Energy Transportation Systems, Inc., a Delaware corporation v. Missouri Pacific Railroad Company, a Missouri corporation	77-C-17	24th Judicial District Court, Rush County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	77-C-18	24th Judicial District Court, Rush County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	77-C-254	20th Judicial District Court, Barton County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	77-C-105	27th Judicial District Court, Reno County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	77-C-104	27th Judicial District Court, Reno County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	77-C-48	19th Judicial District Court, Kingman County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	77-C-1096	18th Judicial District Court, Sedgwick County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Missouri Pacific Railroad Company, a Missouri corporation	77-C-122	19th Judicial District Court, Sumner County, Kansas, Civil Department

Energy Transportation Systems, Inc., a Delaware corporation v. Missouri Pacific Railroad Company, a Missouri corporation	77-C-123	19th Judicial District Court, Sumner County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	25196	19th Judicial District Court, Sumner County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	78-C-226	19th Judicial District Court, Sumner County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	77-C-124	19th Judicial District Court, Sumner County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware Corporation v. Missouri Pacific Railroad Company, a Missouri corporation	78-C-1753	18th Judicial District Court, Sedgewick County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Missouri Pacific Railroad Comany, a Missouri corporation, et al.	C-37229	District Court of Sedgewick County, Kansas
Energy Transportation Systems, Inc., a Delaware corporation v. St. Louis-San Francisco Railway Company, a Missouri corporation, et al.	C-37228	18th Judicial District Court, Sedgewick County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	77-C-250	9th Judicial District Court, Harvey County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Missouri Pacific Railroad Company, a Missouri corporation	77-C-251	9th Judicial District Court, Harvey County, Kansas, Civil Department

Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company, a Delaware corporation	77-C-51	8th Judicial District Court, Marion County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Missouri Pacific Railroad Company, a Missouri corporation	77-C-37	8th Judicial District Court, Morris County, Kansas, Civil Department
Energy Transportation Systems, Inc., a Delaware corporation v. Atchison, Topeka and Santa Fe Railway Company	77-C-38	8th Judicial District Court, Morris County, Kansas, Civil Department
Energy Transportation Systems, Inc. v. St. Louis - San Francisco Railway Company, a corporation	C-77-83-PC	District Court of Kay County, Oklahoma
	C-77-517-E	United States District Court for the Western District of Oklahoma
Energy Transportation Systems, Inc. v. Atchison, Topeka and Santa Fe Railway Company, a corporation	C-77-84-PC	District Court of Kay County, Oklahoma
Energy Transportation Systems, Inc. v. Atchison, Topeka and Santa Fe Railway Company, a corporation	C-77-65	District Court of Noble County, Oklahoma
Energy Transportation Systems, Inc. v. Atchison, Topeka and Santa Fe Railway Company	C-77-193	District Court of Osage County, Oklahoma
Energy Transportation Systems, Inc. v. Missouri Pacific Company, a foreign corporation	C-77-154	District Court of Osage County, Oklahoma
Energy Transportation Systems, Inc. v. Atchison, Topeka and Santa Fe Railway Company	C-77-230	District Court of Washington County, Oklahoma
Energy Transportation Systems, Inc. v. Missouri Pacific Railroad Company, a foreign corporation	C-77-135	District Court of Wagoner County, Oklahoma

Energy Transportation Systems, Inc. v. St. Louis - San Francisco Railway Company, a corporation	C-77-464	District Court of Muskogee County,Oklahoma
Energy Transportation Systems, Inc. v. Missouri Pacific Railroad Company, a corporation	C-77-53	District Court of Haskell County, Oklahoma
Energy Transportation Systems, Inc. v. Kansas City Southern Railway Company, and Fort Smith and Van Buren Railway Company, a corporation	C-77-318	District Court of eFlore County, Oklahoma
	52,680	Supreme Court of Oklahoma
Energy Transportation Systems, Inc. v. Kansas City Southern Railway Company, a corporation	C-77-319	District Court of LeFlore County, Oklahoma
	52-680	Supreme Court of Oklahoma
Energy Transportation Systems, Inc. v. St. Louis - San Francisco Railway Company, a corporation	C-77-235	District Court of LeFlore County, Oklahoma
Energy Transportation Systems, Inc. v. St. Louis - San Francisco Railway Company, a corporation	C-77-423	District Court of Rogers County, Oklahoma
Energy Transportation Systems, Inc. v. Missouri Pacific Railroad Company, a corporation	C-77-422	District Court of Rogers County, Oklahoam
Energy Transportation Systems, Inc. v. St. Louis - San Francisco Railway Company, a corporation	C-77-427	District Court of Rogers County, Oklahoma
Energy Transportation Systems, Inc. v. Missouri Pacific Railroad Company	E-76-370	Chancery Court of Saline County, Arkansas
Energy Transportation Systems, Inc. v. Missouri Pacific Railroad Company	E-76-646	Chancery Court of Jefferson County, Arkansas
Energy Transportation Systems, Inc. v. Missouri Pacific	E-76-106	Chancery Court of Drew County, Arkansas

Railroad Company		
Energy Transportation Systems, Inc. v. Missouri Pacific Railroad Company	76-243	Chancery Court of Ashley County, Arkansas
Energy Transportation Systems, Inc. v. Missouri Pacific Railroad Company	761-151	United States District Court for the Western District of Louisiana, Monroe Division
Energy Transportation Systems, Inc. v. Missouri Pacific Railroad Company	E-76-646	Parish of West Carroll, Louisiana, 5th District Court
	761-150	United States District Court

ATTACHMENT B

EOD MAY 8 1989

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
BEAUMONT DIVISION

CLERK
U.S. DISTRICT COURT
'89 MAY 5 AM 10 06
TEXAS - [illegible]
BY Barbara Smith

ETSI PIPELINE PROJECT, A §
JOINT VENTURE and ENERGY §
TRANSPORTATION SYSTEMS, INC., §
§
Plaintiffs, §
§
HOUSTON LIGHTING & POWER §
COMPANY, UTILITY FUELS, §
INC., LOWER COLORADO RIVER §
AUTHORITY and THE CITY §
OF AUSTIN, §
§
Plaintiffs-Intervenors, §
§
VS. § CIVIL ACTION NO. B-84-979-CA
§
BURLINGTON NORTHERN, INC., §
ET AL., §
§
Defendants. §

FINAL JUDGMENT

On March 3, 1989, this Court granted the Plaintiffs' Motion for Partial Instructed Verdict on the following issues:

1) That there was an agreement or conspiracy to delay, hinder, or stop the ETSI Pipeline Project among the following railroads: Burlington-Northern, Chicago and Northwestern, Kansas City Southern, Missouri-Kansas-Texas (KATY), Missouri Pacific, St. Louis and San Francisco ("Frisco"), Santa Fe, Union Pacific.

2) That Santa Fe knowingly took part in the agreement or conspiracy.

3) That the conspiracy constituted an unreasonable restraint of trade.

4) That the restraint of trade affected interstate commerce.

On March 10, 1989, the jury returned its verdict finding the following:

(I.) That any one or more members of the conspiracy took actions in furtherance of the conspiracy after November 11, 1981, that were a material cause of injury to ETSI's business or property.

(II.) That the sum of money, paid now in cash, that would compensate ETSI for any injury it suffered as a material result of the actions found in response to Interrogatory I is $345,000,000.00.

(III.) That no member or members of the conspiracy took actions in furtherance of the conspiracy after July 31, 1982, that were a material cause of injury to HL&P's business or property.

Based on the foregoing, this Court holds that Santa Fe violated Section 1 of the Sherman Act, 15 U.S.C. 1. Under Section 4 of the Clayton Act, 15 U.S.C. 15(a), ETSI is entitled to recover threefold the damages it sustained or $1,035,000,000.00.

ETSI has received $284,900,000.00 from previous settlements with other Defendants as follows:

Union Pacific	$ 34,900,000.00
Chicago and Northwestern	15,000,000.00
Burlington Northern	175,000,000.00
Kansas City Southern	60,000,000.00
Total Received in Settlements	$284,900,000.00

This Court, therefore, ORDERS the following:

1) The amount received by ETSI in settlements ($284,900,000.00) shall be deducted from the $1,035,000,000.00 judgment against Santa Fe.

2) Plaintiff ETSI Pipeline Project, A Joint Venture, shall recover $750,100,000.00 from Defendants Santa Fe Southern Pacific Corporation and Atchison, Topeka & Santa Fe Railway Company.

3) Plaintiff ETSI Pipeline Project, A Joint Venture, shall recover interest on the $750,100,000.00 amount from Defendants Santa Fe Southern Pacific Corporation and Atchison, Topeka & Santa Fe Railway Company. This interest shall run from the entry of judgment and shall accrue at the rate provided by law.

4) Plaintiff ETSI Pipeline Project, A Joint Venture, shall recover from Defendants Santa Fe Southern Pacific Corporation and Atchison, Topeka & Santa Fe Railway Company cost of suit, including reasonable attorneys' fees.

5) Houston Lighting and Power Company and Utility Fuels, Inc. ("HL&P Plaintiffs") shall take nothing in this suit.

The Court ENTERS Judgment in favor of ETSI Pipeline Project, A Joint Venture, against Santa Fe Southern Pacific Corporation and Atchison, Topeka & Santa Fe Railway Company in the amount of

$750,100,000.00, with interest as provided by law and with cost of court.

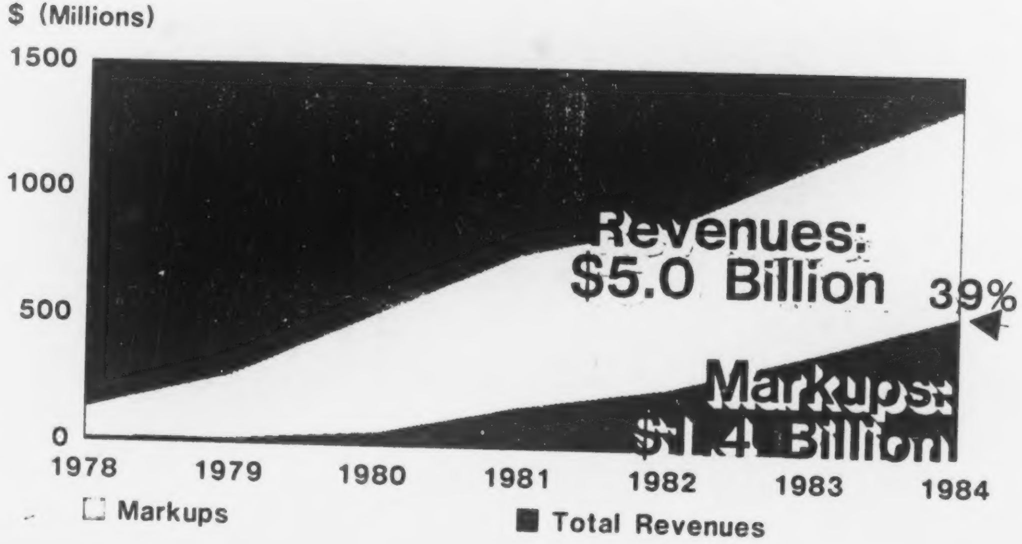
The Court ENTERS Judgment in favor of Santa Fe Southern Pacific Corporation and Atchison, Topeka & Santa Fe Railway Company against Houston Lighting and Power Company and Utility Fuels, Inc.

SIGNED this 5th day of May, 1989.

ROBERT M. PARKER
UNITED STATES DISTRICT JUDGE

ATTACHMENT C

ALL DEFENDANTS' MARKUPS
vs.
TOTAL REVENUES FROM POTENTIAL ETSI CUSTOMERS



STATEMENT OF

EDWARD W. CLYDE

ATTORNEY AT LAW

BEFORE THE

SENATE ENERGY AND NATURAL RESOURCES COMMITTEE

ON S.801

COAL DISTRIBUTION AND UTILIZATION ACT OF 1987

ON

SEPTEMBER 10, 1987

BEFORE THE SENATE COMMITTEE ON ENERGY AND NATURAL RESOURCES

HEARINGS ON S. 801

STATEMENT OF EDWARD W. CLYDE, ATTORNEY

My name is Edward W. Clyde. I live at 1329 Blaine Avenue, Salt Lake City, Utah.

I am an attorney engaged in private law practice for approximately 45 years. In the 1940s I served as an Asst. Attorney General, representing the Utah State Water Engineer and other State Natural Resource Departments. I then taught Water and Mining Law at the University of Utah Law School for several years on a part time basis, I have throughout my years of private law practice specialized in the field of western water law. My practice has extended into several Western states, including Utah, Montana, Wyoming, Idaho, South Dakota, Nevada, Colorado and New Mexico. I will let that suffice as a statement of my experience and refer you to the resume attached to this statement.

I testified before this Committee in 1982 on S. 1844 and again in 1983 on S. 267. At the time of my testimony on these two prior occasions I was legal consultant to Energy Transportation Systems Inc. (ETSI), in regard to its acquisition of water for a proposed coal slurry pipeline project. I also was the lead attorney for ETSI in negotiating a water contract with the State of South Dakota for that line. However, my appearance here is at the invitation of the Committee staff and I do not presently represent anyone who is proposing to construct a coal slurry pipeline.

I have examined S. 801 and am of the opinion that it expressly and adequately preserves the traditional relationship between the western states and the United States of America in regard to the appropriation, use and administration of water. In my opinion it is important for the Congress to express its intent in regard to water -- as this proposed legislation does -- rather than to remain silent and leave the intent of the Congress to be inferred by the courts. I am not critical of the Reserved Rights doctrine, which has been developed by the courts. Under this doctrine the courts have held that when the United States withdraws lands for particular federal purposes, it is to be inferred that Congress also intended to withdraw some undefined quantity of water, so that the withdrawn lands can be used for the intended purpose. I think it is much better for the Congress to express its intent, rather than to leave it for the courts to infer. For example, I seriously doubt that in 1928 any sponsor of the Boulder Canyon Project Act (Act of Dec. 21, 1918, ch. 42, 45 Stat. 1066) thought he was asking the Congress to apportion the waters of the lower Colorado River among Arizona, Nevada and California. Yet in 1973 a divided U. S. Supreme Court held that this is what Congress had done. Where the Congress elects to remain silent and to leave the problem to the courts, it creates uncertainty. The problem of quantifying the amount of water reserved is left for future court decision. This often results in protracted litigation. The amount of water reserved for

Indian tribes under a doctrine pronounced by the U. S. Supreme Court as early as 1907 is still largely unresolved. A new area for litigation is reflected by the court's holding in Sierra Club v. Block, 622 F. Supp. 842 (D.C. Col. 1985). There the U. S. District Court of Colorado inferred that the Congress intended to withdraw an unspecified amount of water in connection with the creation of wilderness areas and it appears that the water reserved for each wilderness area will have to be litigated.

S. 801 addresses the impact of this legislation on water and water rights in several sections. These are noted in Appendix A hereto.

It is my opinion that the language of the Act is completely adequate to express the congressional intent to preserve for the States their historic and traditional role in the allocation and administration of water rights. There is no reason to assume that the courts will do otherwise than uphold and apply this clearly expressed intent. Congress expressed a similar intent in Section 8 of the National Reclamation Act of 1902, (Act of June 17, 1902, ch. 1093, §8, 32 Stat. 388). There the Secretary of Interior is directed to secure water for Bureau of Reclamation projects under State law. In a relatively recent case, California v. United States, 438 U.S. 645 (1978), the court elaborately discussed the history of Western water law and specifically enforced Section 8 as written.

A similar result was reached in Imperial Irr. Co. v. Yellen, 447 U.S. 352 (1980). There the court was construing analogous language (Sec. 6) in the Boulder Canyon Project Act and its holding again strongly suggests that it will uphold the mandate of Congress to protect the application of State water law to Federal projects where the Congress so specifies. There Sec. 6 required the Secretary to recognize "present perfected rights". A "perfected right" had been defined in Arizona v. California, 373 U.S. 546 (1963) as:

> . . .a water right acquired in accordance with state law, which right has been exercised by the diversion of a specific quantity of water that has been applied to a defined area of land or to a definite municipal or industrial work.

The decision in the Imperial case was unanimous. It held that section 6 required the Secretary to deliver water to lands covered by such state-derived water rights, irrespective of their acreage, and thus exempted such lands from the acreage restrictions in the federal reclamation laws, which direct the Secretary not to deliver water to lands in excess of 160 acres per owner. The Court noted:

> In the first place, it bears emphasizing that the §6 perfected water right is a water right originating under state law. In Arizona v. California, we held that the Project Act vested in the Secretary the power to contract for project water deliveries independent of the direction of §8 of the Reclamation Act to proceed in accordance with state law and of the admonition of §18 of the Project Act not to interfere with state law. 373 U.S. at 586-588, 10 L.Ed. 2d 542, 83 S.Ct. 1468. We nevertheless clearly recognized that §6 of the Project Act, requiring satisfaction of present perfected rights, was an unavoidable limitation on the Secretary's power and that in providing for these rights the Secretary must take account of state law. In this respect, state law was not displaced by the Project Act and must be consulted in determining the content and characteristics of the water right that was adjudicated to the District by our decree.

I believe that it is highly desirable to protect the traditional roles of the State and Federal governments in the appropriation, use and administration of water as those roles have evolved over the past 121 years. From my 45 years of law practice in the water law field, it is my observation that the present relationship is working reasonably well. The law has gelled to a point where much of the uncertainty as to where jurisdiction lies has been removed. The individual seeking to use the water is really not much concerned about whether he has to comply with a Federal law -- such as he does in subscribing for water from Federal reclamation projects -- or whether he has to comply with State law. What the user needs is reasonable certainty of expectations. The present accommodation between the State and Federal governments has gelled to a point where that certainty can be provided.

The United States acquired most of the Western lands as a proprietary owner. At that point the United States also had the legislative powers vested in it by the U. S. Constitution. Article IV, Sec. 3, clause 2 of the Constitution vests in Congress the power "to dispose of and make all needful Rules and Regulations respecting the . . . property belonging to the United States." This constitutional language was explained and applied in Alabama v. Texas, et al., 347 U.S. 272, 273, 98 L.Ed. 689, 74 S. Ct. 481 (1954) reh. den. 347 U.S. 950, 98 L.Ed. 1097, 74 S. Ct. 674 (1954) as follows:

> The motions for leave to file these complaints are denied. Article IV, §3, Cl. 2, United States Constitution. United States v. Gratiot, 14 Pet. 526, 537, 10 L.Ed. 573: The power of Congress to dispose of any kind of property belonging to the United States "is vested in Congress without limitation." United States v. Midwest Oil Co., 236 U.S. 459, 474, 35 S.Ct. 309, 313, 59 L.Ed. 673: "For it must be borne in mind that Congress not only has a

> legislative power over the public domain, but it also exercises the powers of the proprietor therein. Congress 'may deal with such lands precisely as an ordinary individual may deal with farming property. It may sell or withhold them from sale.'. . ." United States v. California, 332 U.S. 19, 27, 67 S.Ct. 1658, 1663, 91 L.Ed. 1889: "We have said that the constitutional power of Congress [under Article IV, §3, Cl. 2] is without limitation."

Congress could have elected to control the use and ultimate allocation or disposition of Western water as it has elected to control the leasing and disposal of federal lands and mineral resources. However, in the beginning, when the Mormons settled Utah and the gold miners descended upon California, they used the Federal lands, the Federal minerals and the Federal water under local customs and local laws. The United States silently acquiesced. By the early 1860s Congress had provided means by which a private individual could acquire ownership in Federal lands and new owners here and there were successfully asserting the riparian rights doctrine (based on ownership of riparian land) to divest those who had made a prior use of the water under local law. See Union Mill & Mining Co. v. Ferris, 24 Fed. Cas. 594 (No. 14371) (C.C.D. Nev. 1872); VanSickle v. Haines, 7 Nev. 249 (1872).

Congress responded, by confirming the acquisition of water rights in accordance with local customs. It adopted a general statute dealing, for the most part with mining claims (Act of July 26, 1866, ch. 262, 14 Stat. 251), which simply said that whenever by priority of possession rights to the use of water for mining, agriculture, manufacturing or other purposes have vested and accrued, and the same are recognized and confirmed by local customs, laws and decisions of the courts, the owner of such rights shall be protected in the same.

The Act of 1866 was construed by the U. S. Supreme Court to be "a voluntary recognition of a pre-existing right of possession constituting a valid claim to" the continued use of the water, rather than "the establishment of a new one," and the courts were bound to protect rights which had vested under local custom, whether initiated prior to or after the passage of that act. See Broder v. Water Co., 101 U.S. 274 (1879).

In 1877, with the enactment of the Desert Land Act, Congress further aided those States desiring to reject the claim of riparian rights by severing the water from patents to the public land. After that Act no United States patent to lands in specifically named western states would carry with it any interest in the water of non-navigable streams. In construing this Act, the U. S. Supreme Court in California Ore. Power Co. v. Beaver Portland Cement Co., 295 U.S. 142, 162 (1935) said:

> As the owner of the public domain, the government possessed the power to dispose of land and water thereon together, or to dispose of them separately. . . .The fair construction of the provision now under review is that Congress intended to establish the rule that for the future the land should be patented separately; and that all non-navigable waters thereon should be reserved for the use of the public under the laws of the states and territories named.

Thus, the right of each state to adopt its own system of water law to govern the appropriation of non-navigable waters was granted by Congress and confirmed repeatedly by the U. S. Supreme Court. See Nebraska v. Wyoming, 325 U.S. 589 (1945); California Ore. Power Co. v. Beaver Portland Cement Co., supra; Kansas v.

Colorado, 206 U.S. 46 (1907); Clark v. Nash, 198 U.S. 361 (1905); United States v. Rio Grande Dam & Irr. Co., 174 U.S. 690 (1899).

These statutes are in the nature of an "offer" to the public. They permitted the waters to be appropriated for private use by following state law and local custom. Until the water is so appropriated, however, the ownership rights relating to water on the public domain continue in the United States. If the United States were to elect to repeal these statutes and thus to withdraw the offer as to unappropriated waters on Federal lands, there is no theoretic reason why it could not do so. However, where private appropriators have perfected water rights in accordance with state law, as permitted by these Federal statutes, the rights would vest. The Federal offer has been accepted, and generally speaking the right cannot thereafter be taken by the Federal government, or by anyone else, without compensation. See Hunter v. United States, 388 F.2d 148 (C.A. 9 Cal. 1967).

There are a number of bases for Congress to assume jurisdiction over unappropriated Western water as a matter of power. One is the above noted Federal proprietary interest. Among the other sovereign powers are the power (a) to regulate commerce (which has been extended to non-navigable tributaries which can affect navigation); (b) to make treaties; (c) to provide for the general welfare; (d) to provide for the national defense; (e) to regulate the use of water reserved to the Indians; and (f) to authorize interstate compacts. The U. S. Supreme Court held in Cooley v. Board of Wardens, 33 U.S. 299, (12 How.) (1851) that Congress cannot by statute alienate these Federal constitutional powers. While the case is an old one, it was cited with approval by the U. S. Supreme Court in July of 1982, in Sporhase, infra, and is still good law.

However, for more than 121 years the Congress of the United States has recognized that many of the problems relating to water allocation and use are local in nature and ought to be controlled by the States. Congress, accordingly, has generally deferred to the States on water allocation. It must be recognized, however, that in the very nature of things there are some problems which are Federal. Obstacles constructed across navigable streams have to be regulated if navigability is to be protected. The licensing and regulation of such structures is placed under the control of Congress by the Constitution. The power to regulate and license such structures does not need also to embrace control over the appropriation of project water. Users of water above and below the licensed dam will have initiated their rights under State law. It will in no way interfere with the Federal government's power to protect the navigability of streams to require the procurement of a federal license for the obstruction, and then to require the securing of water rights in accordance with State Law. This was the scheme provided for on reclamation projects by §8 of the National Reclamation Act of 1902.

There are other areas where Federal intervention is necessary and desirable. For example, the individual State has difficulty coping with upstream pollution of an interstate stream. It is doubtful that the States would have been able to agree on filling criteria for Lake Powell -- water withheld in storage to fill Lake Powell would not be available for the generation of power and the supplying of water from Lake Mead. Congress adopted the necessary filling criteria. Again using the Colorado River as an example, only the United States, through its treaty-making power could have dealt with the claims of Mexico. The reservation and administration of water for the Indians also, in my opinion, are Federal problems. The accommodation between the State and Federal jurisdiction is well developed. It is working all right. The superior power may, in many of these areas, rest with the Congress, but conflicts in the past have been resolved as a matter of policy, rather than of power. This policy has left with the States the appropriation and administration of water. In my opinion, it is desirable to leave it there. This proposed legislation does so.

I assume that the language of Section 5(b) of S. 801 authorizing State restraints on interstate commerce is in response to the U. S. Supreme Court decision in Sporhase, et al. v. Nebraska, ex rel. Douglas, Attorney General, 458 U.S. 941, 102 S. Ct. 3456 (decided July 2, 1982). In Sporhase the State of Nebraska had enacted a reciprocal statute which would permit Nebraska water to be used outside the State of Nebraska only if the sister State had a similar reciprocal statute. It prohibited out-of-state use otherwise. The U.S. Supreme Court held that this was an unconstitutional restriction on interstate commerce. In so holding the majority opinion indicated three bases for congressional intervention.

First, the court noted the multi-state character of the Ogallala ground water aquifer and said that the interstate nature of the aquifer confirms the view that there is a federal interest in conservation, as well as in the fair allocation of the diminishing resource -- citing Arizona v. California, 373 U.S. 546 (1963). In the Arizona v. California case the Supreme Court had held that Congress had the power to apportion the waters of an interstate stream and that by adopting and implementing the Boulder Canyon Project Act it had in fact made such an allocation of the Lower Basin waters of the Colorado River among the Lower Basin States.

Secondly, the court notes that Congress has the power under the commerce clause to regulate an interstate ground water basin.

Third, the court notes that the overdraft of the Ogallala Aquifer is a national problem and Congress has the power to deal with it on that scale. It is this statement which has given the states the greatest concern, but the court has long held that Congress has the power to provide for the general welfare and can do so in the field of water law. See Ivanhoe Irr. Dist. v. McCracken, 357 U.S. 275 (1958), where the court said that in developing Federal water projects, the United States had expended federal funds for a valid public and national purpose -- the promotion of agriculture. "This power flows not only from the General Welfare Clause of Art. I, Section 8 of the Constitution, but also from Art. IV, Section 3, relating to the management and disposal of federal property."

The Commerce Clause doctrine arises out of a negative inference from the constitutional grant of power to the U. S. Congress and is really an implied, rather than express, limitation on state interference with interstate commerce. However, as the U. S. Supreme Court stated in Southern Pacific Co. v. Arizona, 325 U.S. 761, 769 (1945), since it is the power of Congress to begin with, Congress has the power to "redefine the distribution of power over interstate commerce" so as to "permit the states to regulate commerce in a manner which would not otherwise be permissible. . . ." In the case of Prudential Insurance Co. v. Benjamin, 328 U.S. 408 (1946), the Supreme Court upheld the concept that Congress has the power to consent to State regulation of commerce even though that regulation would otherwise run afoul of the dormant Commerce Clause.

The Southern Pacific Co. case was cited with approval by the U. S. Supreme Court in a decision rendered February 28, 1983 in the case of White v. Mass. Council of Const. Employers, 460 U.S. 204, 216. The court there said:

> . . .Where state or local government action is specifically authorized by Congress, it is not subject to the Commerce Clause even if it interferes with interstate commerce. Southern Pacific Co. v. Arizona, 325 U.S. 761, 769 (1945). Thus, if the restrictions imposed by the city on construction projects financed in part by federal funds are directed by Congress then no dormant Commerce Clause is presented.

The court also suggested in Sporhase that there may be a legitimate State reason permitting the State to formulate a program which would include restrictions on the exporting of water. I believe the protection of water allocated to a State under interstate water compacts approved by Congress would fall into this category. It has, of course, long been recognized that the State can place restrictions on commerce to protect overriding State interests, such as, for example, restricting the interstate transportion of gambling devices in order to protect State policy prohibiting gambling; or the interstate shipment of fruits and vegatables to protect against the spread of insects or disease.

In any event, it is my opinion that the language of Sec. 5(b) of S. 801 provides the required congressional consent to permit the States to regulate commerce, in regard to water for interstate coal slurry pipelines, in a manner which Sporhase would otherwise have prevented. Where the Constitution grants to Congress the power to legislate, it may discharge its legislative function by adopting State laws, present or prospective. See United States v. Sharpnack, 355 U.S. 286 (1958); Prudential Insurance Co. v. Benjamin, 328 U.S. 408 (1946). Congress may also remove the obstacles to State legislation, which will permit the State itself to legislate directly upon the subject, even though Congress cannot by statute relinquish its sovereign powers to the several States. See Butte City Water Co. v. Baker, 196 U.S. 119 (1905); and Wilkerson v. Rahrer, 140 U.S. 545 (1891); Cooley v. Board of Wardens, 53 U.S. (12 How.) 299 (1851).

In short, S. 801, if adopted, will, in my opinion, preserve the traditional role of the western states and the federal government in the allocation and use of Western water; the courts almost certainly would so hold. Further, the proposed legislation will permit state restrictions on the export of water for coal slurry pipelines in ways which but for this legislation would not be permissible.

APPENDIX A

S. 801 addresses the impact of this legislation on water and water rights in the following language:

"FINDINGS AND PURPOSE

"Sec. 2(a) The Congress hereby finds and declares that--

. . . .

"(7) the water resources of the States are necessary for the development of other resources within those States, and State water laws or terms and conditions of permits and authorizations for the appropriation, use, and diversion of water that restrict, limit, or condition the export of water in interstate coal pipeline distribution systems are reasonable and permissible means for the protection of the resources and the public interests of States;

"(8) State water law and interstate compacts are carefully balanced and structured systems for the allocation of water;

"(9) the national interest is best served by developing interstate coal pipeline distribution systems pursuant to those State water laws, interstate compacts, and laws governing the interstate allocation of water, including, notwithstanding any adverse impact such law may have on interstate commerce, laws relating to or prohibiting the export or use of water within or outside the State granting or denying such export or use; and

"(10) the need for a national coal distribution system is subservient to the national interest in the primacy of State water law, interstate compacts, and laws governing the interstate allocation of water."

"DEFINITIONS

"Sec. 3. For the purposes of this Act the term--

. . . .

"(7)(A) 'State water law' includes but is not limited to all substantive and procedural State constitutional provisions, statutory law, judicial decisions, administrative regulations, and administrative decisions authorized by the State which apply to water; and"

. . . .

"EMINENT DOMAIN AUTHORITY

Sec. 4.

. . . .

"(f) EMINENT DOMAIN AUTHORITY.--(1) Any person proposing to build an interstate coal pipeline distribution system, the construction of which has been determined by the Secretary to be in the national interest, may, after making good faith efforts to acquire, such rights-of-way by negotiations between such person and private landowners, acquire rights-of-way over, under, upon, or through private lands by exercise of the power of eminent domain in the United States district court for the district in which such lands are located or in the appropriate court of the State in which such lands are located. In any action or proceeding to acquire rights-of-way under this section, such action or proceeding shall conform to the laws, practices, and procedures relating to the general eminent domain law of the State where the property is situated, except that in the case of any such State law, practice, or procedure, the effect of which would prohibit any acquisition under this section, or which discriminates against interstate coal pipeline distribution systems, such State law, practice or procedure shall not be applicable,

"(2) Nothing in this section shall be construed to permit any person to acquire any water right through the exercise of the power of eminent domain granted under this Act.

"(3) No interstate coal pipeline distribution system constructed pursuant to the authorities of this section shall be considered to be a Federal project for purposes of the application for or assignment of water rights."

. . . .

"PRIMACY OF STATE WATER LAW

"Sec. 5.

. . . .

"(b) In full recognition of its powers under Article I, section 8 of the United States Constitution, Congress expressly delegates to the States the power to regulate the use or export of water in interstate coal pipeline distribution system, through State water laws, notwithstanding any adverse impact such delegation may have on interstate commerce or on any interstate coal pipeline distribution system. This delegation expressly includes but is not limited to provisions of State water law which provide for the establishment or exercise of terms or conditions (including terms or conditions terminating use or relating to or prohibiting the export of water) on permits or authorizations, for, interests in, or rights to control, reservation, appropriation, purchase, transfer, use, diversion, dedication, distribution, acquisition, exercise, export or claim of water for the export or use in any interstate coal pipeline distribution system."

PERSONAL RESUME OF EDWARD W. CLYDE

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Education

B.S. Degree, Brigham Young University 1939, Juris Doctor Degree University of Utah 1942.

Practice

Engaged in the private law practice in his own firm since 1945. Throughout that period has concentrated on all phases of Natural Resources Law. The area of practice is generally throughout the West, with extensive work in Nevada, Wyoming, Montana, Idaho, Colorado and Utah.

Honorary

American College of Trial Lawyers; Order of the Coif; Phi Kappa Phi; Member of Society of Bar & Gavel; has received awards for work on behalf of environmental law; received "Man of the Year Award" from Phi Delta Kappa, for service in public education 1973; Received Distinguished Alumni Award, U. of U. Alumni Assn. 1981; Honorary Doctor of Laws Degree, U. of U. 1981; U. of U. College of Law Alumni of Year Award 1982; "Lawyer of the Year" Award, Utah State Bar 1985.

Civic

Member of the Board of Regents, U. of U. 1964-67. Chairman of the Board of Regents 1965-67. In 1969 governance of education in Utah was divided and Mr. Clyde elected to stay on the on-campus governing board, which became known as the Institutional Council; Chairman of that council 1969-1981. Presently a member of the University Hospital Board.

Member and then Chairman of Utah Constitutional Revision Commission for about six years, ending approximately 1975.

Professional

On graduation from U. of U. in 1942, was employed as a law clerk to Chief Justice Wolfe of the Utah Supreme Court, which position was held for approximately three years.

Appointed Special Asst. Attorney General in about 1945, which was a part-time assignment, but the specific representation was as attorney for the Utah State Engineer (the officer who administers Utah water law); attorney for the State Land Board (the agency which manages Utah's publicly owned land); attorney for the Utah Water & Power Board (an agency which builds small water projects). Also was assigned to represent the State of Utah as an attorney in the negotiation of the Upper Colorado River Compact. This activity was carried on along with a private law practice from 1945 to 1948.

In 1948 commenced full-time private practice.

Accepted an appointment as Utah Land Board Commissioner and an appointment as Utah Oil & Gas Commissioner, which regulates the oil and gas business in Utah (1956-60).

Taught mining law, water law and other law subjects (one class per quarter) at the University of Utah Law School from 1948 until about 1964. This also included teaching a course in law for engineers and architects and a course in law for the graduating medical class. Resigned from all teaching to take the appointment to the Board of Regents.

Was a member of the National Advisory Board to Secretary of Interior Udall on public lands; legal consultant for a four-year period ending in 1972 to the National Water Commission created by President Nixon.

Chairman of the Water Law Committee of the Natural Resources Section of the American Bar Assn. for approximately five years; was a Council member for approximately three years; Chairman of the Section 1976-7.

Publications

Digest of Utah Water Law. This initially consisted of indexing by subject matter and writing a digest on all Utah Supreme Court water cases from the inception of the Court through 1948. This was a two-volume work published in 1948. A few years ago this was brought current.

Major contributor to a seven-volume work on Water and Water Rights, published by Allen Smith Co.

Have published law review articles, as follows: (This is only a partial list, but perhaps more than adequate to indicate the scope of professional writing.) "Legal Aspects of the Development of the Colorado River", Vol. 1 Utah Law Review (1949); "Chief Justice Wolfe on the Function of Law in Society", Vol. 3, No. 2 (1952) Utah Law Review; "Current Developments in Water Law", Vol. 53 Northwestern University Law Review (1959); "Present Conflicts on the Colorado River", Vol. 32, Rocky Mountain Law Review; "Conflicts Between the Upper and Lower Basins on the Colorado River"; Western Resources Conference, Colorado Press (1959); "The Aneth Spacing Order: A Case Study of Administrative Regulation", Vol. 7 Utah Law Review 1960; "Water Rights Problems Affecting Resource Development", Vol. 10 Rocky Mountain Mineral Law Institute (1965); "Problems of Regulatory Agencies in Administering Conservation Statutes -- Well Spacing", Vol. 7 Rocky

Mountain Mineral Law Institute (1962); "New Battlegrounds in the War for Water", ABA Sec. of Mineral & Natural Resources Law, (1962); "The Colorado River Decision -- 1963", Vol. 8 Utah Law Review (1963); "Legal Problems Imposed by Requirements of Restoration and Beautification of Mining Properties", Vol. 13 Rocky Mountain Law Institute (1967); "Mineral Rights v. Water Rights", Vol. II Natural Resources Lawyer (1969); "Administrative Allocation of Water", National Water Commission (1971); "Special Considerations Involving Indian Rights", Vol. VII Natural Resources Lawyer (1975); "Coal Mining, Development and Processing -- the Associated Water Problems", 21 Rocky Mountain Mineral Law Institute (1975); "Future Directions in Water Law", 6th Annual Conf. Utah Section of American Water Resources Asso. (1978); "The Anatomy of an Energy Project", Vol 26 Rocky Mountain Mineral Law Institute (1980). Several articles since 1980.

Business

Managing partner Clyde, Pratt & Snow law firm. Owner of Diamond Bar X Ranch, which has 1,000 acres of irrigated land. Chairman of the Board of Directors of American Savings & Loan Association, which operates in Oregon, Hawaii and Utah.

Edward W. Clyde
Given to CUP Board
10-9-86

HISTORICAL DEVELOPMENT OF WESTERN WATER LAW AND THE ROLES OF THE STATE AND FEDERAL GOVERNMENTS THEREIN

Water is one of the most abundant and widely distributed substances on the face of the earth. Yet, it is such a common part of our daily life that we sometimes fail to realize just how important it is.

Water everywhere is finding extensive use in science and industry. We use it as a solvent and as a catalyst. It is a conveying medium for the transport of materials, both by ship and by pipeline. It is almost indispensable to the disposal of wastes. It is extensively used in the production of power and heat and in air conditioning and in refrigeration. It is necessary to the cells of all plants and animals, and in the crystals of many minerals. We use it to water-flood our oil fields, and to landscape and beautify. We swim in it, play on it, camp by it and fish from it for an important part of the world's food supply. And we waste appalling quantities of it through pollution.

Here in America a family of four uses 550 gallons of water per day in the home. Animals use about 10 tons of water for each ton of animal tissue. It takes 250 tons of water to produce one ton of paper; 600 tons of water to produce one ton of nitrate fertilizer. In agriculture we use 1,000 tons of water to produce one ton of sugar or one ton of corn, 1,500 tons of water for one ton of wheat, 4,000 tons of water for one ton of rice and 10,000 tons of water for one ton of cotton.

Even though water is abundant, the entire world is running out of fresh water at an alarming rate. The problem would, of course, vanish if somehow the vast oceans could be made drinkable and then could be distributed at reasonable cost. When the United States opened its first desalination plant at Freeport, Texas, President Kennedy said that the process of removing salt from sea water could "do more to raise men and women from lives of poverty and desperation than any other scientific advance."

In the semi-arid west, there simply is not enough water to supply all of the competing needs. We also are seeing a change in the law regarding beneficial use. In the past the courts were reluctant to sustain the appropriation of water for instream uses or for recreation, or to protect aesthetic values. However, such uses are finding protection in the law, and are increasing the competition for the limited water supply.

The fabric of what is now the main body of our resource law was woven at a time when our population was relatively small. The continent was seen as a vast frontier with resources almost inexhaustible. Resource law developed along patterns which would encourage development. It is thus logical that early writers would speak of the law keeping pace with industrial progress and of the nation's laws being a history of the economic forces which created the laws.

It was recognized from the very beginning that the federal government was the proprietary owner of the lands in the western states. Alabama v. Texas, 347 U.S. 272 (1954); U.S. v. Rio Grande Dam and Irrigation Co., 174 U.S. 102 (19__). Congress, by its silence, was held to have assented to the general occupation of these lands. Atkinson v. Peterson, 87 U.S. 507 (1874). In 1866 Congress confirmed acquisition of water rights in accordance with the local customs. It did so by a general statute dealing, for the most part, with mining claims. (Act of July 26, 1866, Chapter 262, 14 Stat. 251). The Act simply said that whenever by priority of possession, rights to the use of water for mining, agriculture, manufacturing, or other purposes, vested and accrued and the use is recognized and confirmed by local customs, laws and decisions of the courts, the owner of such right shall be protected in the same. This Act of 1866 was construed by the United States Supreme Court to be a "voluntary recognition of a pre-existing right of possession, constituting a valid claim to the continued use of the water, rather than "the establishment of a new one", and the courts were bound to protect rights which had vested under local custom, whether initiated prior to or after the passage of that Act. Broder v. Water Co., 101 U.S. 274 (1879)

Since the United States originally owned, as a proprietor, the land in the western states, all settlers were trespassers against the government. Miners and farmers alike were diverting water from its accustomed channel and taking it for use on distant lands. Others were locating along the banks of the streams and claiming, under the riparian doctrine, the right to have the water stay in its accustomed channel. The courts ruled against these riparian settlers and in favor of the first appropriator because the settlers, owning no riparian lands, were not in a position to assert the riparian rights doctrine.

The original precedent for the doctrine of prior appropriation is generally considered to be the California case of Irwin v. Phillips, 5 Cal. 140 (1855). There the plaintiff had diverted water from a stream running through public lands and transported it to mining lands located some distance from the stream. Subsequently the defendant located along the banks of the stream and asserted the right to have the water remain in its accustomed channel in accordance with the doctrine of riparian rights. In rejecting the defendant's claim the court said that it was required to take judicial notice of the political and social conditions of the area. The federal government had shown no intention of disposing of its public lands, and had permitted a system governing the use of water to grow up by the voluntary act and assent of the people. To be sure, some of the elements were still crude and undigested, but the court noted that a universal sense of necessity and propriety had so firmly fixed other elements of the system that they have come to be looked upon as having the force and effect of res judicata. The plaintiff, being first to use the water, was held to be first in right, and the doctrine of prior appropriation was thus born. It was, of course, conceived by the needs of the arid area, and its character has since been shaped by the local environment in which it has developed.

The principle that he who is first in time is first in right was affirmed in other cases, and became so firmly established that the California court rebuked counsel for disputing its existence. Wherever the matter was litigated in regard to water on public lands, the courts of the west applied the prior rights doctrine. The Supreme Court of Nebraska in Meng v. Coffee, 67 Neb. 500 (1903) explained the genesis of the doctrine as "a crude attempt to preserve order and the general peace, and to settle customary rights among a body of men subject to no law, under which so many and so valuable rights arose that when the law stepped in it was obligated to recognize them".

Mr. Justice Fields had been appointed to the United States Supreme Court from the California Supreme Court, and in Atchison v. Peterson, 87 U.S. (20 Wall.) 507 (1874), the United States Supreme Court, speaking through Mr. Justice Fields, affirmed the prior appropriation doctrine. The court said:

> This equality of right among all the proprietors on the same stream would have been incompatible with any extended diversion of the water by one proprietor, and its conveyance for mining purposes to points from which it could not be restored to the stream. But the government being the sole proprietor of all public lands, whether bordering on streams or otherwise, there was no occasion for the application of the common law doctrine of riparian proprietorship with respect to the waters of those streams. The government, by its silent acquiescence, assented to the general occupation of the public lands for mining, and, to encourage their free and unlimited use for that purpose, reserved such lands as were mineral from sale and the acquisition of title by settlement. And he who first connects his own labor with property thus situated and open to general exploration, does, in natural justice, acquire a better right to its use and enjoyment than others who have not given such labor.

It is interesting to note that though great numbers of people had settled in the west and territorial and state governments had been set up by 1849, no steps were taken by Congress to provide for private acquisition of the federal lands or water. However, a firm system of water law had been formulated by judicial decision, and the fundamental principles then established have ever since been followed consistently. They are: (1) that water in its natural course is the property of the public, and is not subject to private ownership; (2) that a vested right to use the water may be acquired by appropriation and application to beneficial use; (3) that the person first in time is first in right; and (4) that beneficial use is the basis, the measure, and the limit of the right.

By 1862 Congress began to provide ways by which title could be acquired to federal land (Homestead Act, 12 Stat. 392). Conflicts between the riparian land owner and those who desired to remove the water from the channel for use on distant lands developed. In isolated cases the courts were holding in favor of the new riparian land owner. Where the appropriation of water had preceded the land patent, the courts had less difficulty in applying the appropriation doctrine. However, where the water was unappropriated and thus in its accustomed channel at the time of the land patent, the contention that the land owner acquired riparian rights in the water presented a more serious problem. Legislative ratification by Congress of the prior right doctrine was clearly desired. Local customs upholding the appropriation doctrine were first ratified in 1865 in an act concerning federal courts in Nevada (Act of February 27, 1865, ch. 64, 13 Stat. 440). Then, as noted above, Congress in 1866 expressly confirmed acquisition of water rights in accordance with local customs (Act of July 26, 1866, ch. 262 14 Stat. 251). That act simply said that whenever by priority of possession rights to the use of water for mining, agriculture, manufacturing or other purposes have vested and accrued, and the same are recognized and confirmed by local customs, laws and decisions of the courts, the owner of such rights shall be protected in the same.

Then, as also noted above, this Act of 1866 was construed by the U. S. Supreme Court (the 1879 case of Broder v. Water Co., 101 U.S. 274) to be "a voluntary recognition of a pre-existing right of possession constituting a valid claim to" the continued use of the water, rather than "the establishment of a new one," and the courts were bound to protect rights which had vested under local custom, whether initiated prior to or after the passage of that act.

In 1877, with the enactment of the Desert Land Act Congress further aided those states desiring to reject the doctrine of riparian rights by severing the grant of the right to use water from a private patent to public land. After that Act, no United States patent to lands in specifically named western states would carry with it any interest in the water of non-navigable streams. In construing this act, the U. S. Supreme Court said in California Ore. Power Co. v. Beaver Portland Cement Co., 295 U.S. 142 (1935):

> As the owner of the public domain, the government possessed the power to dispose of land and water thereon together, or to dispose of them separately. . . .The fair construction of the provision now under review is that Congress intended to establish the rule that for the future the land should be patented separately; and that all non-navigable waters thereon should be reserved for the use of the public under the laws of the states and territories named.

Thus, the right of each state to adopt its own system of water law to govern the appropriation of non-navigable waters was granted by Congress and confirmed repeatedly by the U. S. Supreme Court. See Nebraska v. Wyoming, 325 U.S. 589 (1945); California Ore. Power Co. v. Beaver Portland Cement Co., supra; Kansas v. Colorado, 206 U.S. 46 (1907); Clark v. Nash, 198 U.S. 361 (1905); U. S. v. Rio Grande Dam & Irr. Co., 174 U.S. 690 (1899). This concept has not been confined to the appropriation states. For example, in Revell v. State, 177 Ill. 468, 52 N.E. 1052 (1898) the same right to establish its own system of water law was asserted by the Illinois Supreme Court. The court said each state has the right to determine for itself the title and rights of riparian owners within its border. Illinois has decided to follow the common law rule of ownership by the sovereign of the beds of navigable rivers with power in the state to prohibit the building of facilities on state land and it applied the common law doctrine of riparian rights.

The federal government, as the proprietor of western land and water, had the right through Congress to dispose of its lands and waters. It was deemed wise by Congress to permit each state to formulate the law controlling its water as best fitted local needs. Agencies of the federal government were required by Congress to comply with state laws in the appropriation of water. For example, the National Reclamation Act of 1902 required the Secretary of the Interior to secure project waters in accordance with local law (Act of June 17, 1902, ch. 1093, §8, 32 Stat. 388). See Nebraska v. Wyoming, 325 U.S. 589 (1945). In California v. United States, 440 U.S. 59 (1978), the U.S. Supreme Court held that the Act was mandatory and meant what it says: The Bureau must acquire water for federal reclamation purposes by complying with state law. However, as we will examine in more detail in future papers, Congress did not relinquish all of its proprietary interests and as a matter of fundamental constitutional law it could not and did not surrender to the states any of its federal governmental powers. As an extension of this concept the Utah Supreme Court in 1954 (In re Bear River Drainage Area, 2 Utah 2d 208, 271 P.2d 846) held that since the Bureau files on water as does any other appropriator, it thereby subjects itself to state administrative procedures and to the jurisdiction of the Utah courts for review of the orders of the State Engineer's administrative orders.

Problems of Regulation

The fact that the federal government was the proprietor of western land and waters probably in the overall end result was beneficial to the states. It may be that the courts would have repudiated the riparian doctrine simply because it was not suitable to western needs. Colorado did so in Coffin v. Left Hand Ditch Co., 6 Colo. 443 (1882). It, however, is entirely possible that the courts would have applied the riparian doctrine had there in the beginning been a riparian owner. If riparian rights had attached to ownership of riparian land, serious constitutional problems would have been encountered in abolishing that doctrine. The development of the west absolutely required the diversion of water from its accustomed channel. It is, thus, fortunate that at the very beginning the federal ownership concept of water developed.

As water needs continue to rise in the eastern portions of the United States and it becomes necessary, in order to meet those needs, to divert water for use on distant lands, these constitutional problems are going to be encountered. The courts in the east thus far have applied the doctrine of riparian rights. If the various riparian land owners acquired rights to the waters in the adjacent streams, the diminution of those rights through diversion for use on distant lands may be halted by the due process clauses of the federal and the various state constitutions. Although we will not digress here to explore this point fully, it ought to be noted in passing that the concept of vested riparian rights should not be considered sacrosanct. They are only a species of property, and private property generally must yield to reasonable police power regulation -- the right to preserve forever the natural yield of a public stream for the exclusive benefit of the owners of riparian lands may ultimately fail. It is failing under the public trust doctrine on western streams. Land owners are losing control of the streams which run through their lands. The state is establishing the right to bring water through private land and the right of the public to use those streams is being expanded throughout the west.

While the federal government, as the proprietor, has acquiesced both through the courts and in Congress in state control of the appropriation of water, the federal government, as a sovereign, has placed many limitations on the concept of state control. It was recognized early on that the federal government received its sovereign powers from the Constitution. These powers could not be increased through the purchase of land from foreign nations. Thus, although France and Mexico, from whom this western land was acquired, followed the civil law, the purchase from these nations did not increase the sovereign powers over these lands of the purchaser (the United States). The Supreme Court has also recognized that where the Constitution excludes the state, Congress cannot re-grant or in any manner reconvey that power to the states. See Cooley v. Board of Wardens, 33 U.S. (12 How.) 299 (1851). Similarly, a state holding title to the bed of a navigable river in trust for the public cannot convey away that trust. See Illinois Cent. R.R. v. Illinois, 146 U.S. 387 (1892) However, where the Constitution grants to Congress the power to legislate, it may discharge its legislative function by adopting state laws, present or prospective. See United States v. Sharpnack, 355 U.S. 286 (1958); Prudential Ins. Co. v. Benjamin, 328 U.S. 408 (1946). It may also remove the obstacles to state legislation which will permit the state itself to legislate directly upon the subject. See Butte City Water Co. v. Baker, 196 U.S. 119 (1905); In re Rahrer, 140 U.S. 545 (1891). But it cannot reconvey its sovereign powers to the several states and it can repeal prospectively any statute it adopts.

Federal Power to Control Navigation

One of the main restrictions on state control of the appropriation of water is the power of Congress to regulate commerce and to control navigable waters. The Supreme Court has said that the federal government holds a "dominant servitude" on the waters of navigable stream. If it chooses to exercise its full powers, private rights initiated under state law to use the navigable waters apparently can be totally wiped out without compensation.

United States v. Twin City Power Co., 350 U.S. 222 (1956), involved the problem of just compensation for a potential power site taken by the United States. Congress had authorized construction of a multiple-purpose dam, one of the uses being to improve the river for navigation. The court held that the United States need not compensate the owner of the power site, and in so holding stated:

> The interest of the United States in the flow of a navigable stream originates in the commerce clause. That clause speaks in terms of power, not of property. But the power is a dominant one which can be asserted to the exclusion of any competing or conflicting one. The power is a privilege which we have called "a dominant servitude" [citing cases] or "a superior navigation easement". . . .The legislative history and construction of particular enactments may lead to the conclusion that Congress exercised less than its constitutional power, fell short of appropriating the flow of the river to the public domain, and provided that private rights existing under state law should be compensable or otherwise recognized. Such were U. S. v. Gerlach Live Stock Co., 339 U.S. 725 and Federal Power Commission v. Niagara Mohawk Power Corp., 347 U.S. 239 (1954). We have a different situation here. One where the United States displaces all competing interests and appropriates the entire flow of the river for the declared public purpose.
>
> . . .[T]he exclusion of riparian owners from the benefits of the power in a navigable stream "Without compensation is entirely within the Government's discretion."

The absolute power over navigable waters thus conceded to Congress by the Supreme Court is a matter of considerable importance. All navigable waters are fed by tributaries, which in their upper reaches are non-navigable. Still the diversion and consumptive use of such waters can deplete the flow and thus interfere with navigation. This also is the basis for the exercise of federal control. It is, for example, used to control sewage and industrial waste dispersed into navigable streams.

Also, the question of whether the purpose of a project is in fact for navigation is left to Congress. In the case of Arizona v. California, 283 U.S. 423 (1931), Arizona charged that the Secretary of the Interior was proceeding in violation of Arizona's quasi-sovereign rights to build Boulder Dam. Half of the dam was to be located in Arizona. Its purpose was to divert water from the Colorado River. The Supreme Court held that the federal government had the power to authorize construction of the dam for the purpose of improving navigation. To the contention of Arizona that the purpose of the dam was really other than improving navigation, the Court said:

> Into the motives which induced members of Congress to enact the Boulder Canyon Project Act, this Court may not inquire. . . .The Act declares that authority to construct the dam and reservoir is conferred, among other things, for the purpose of "improving navigation and regulating the flow of the river." As the river is navigable and the means which the Act provides are not unrelated to the control of navigation. . .the erection and maintenance of such dam and reservoir are clearly within the powers conferred upon Congress. Whether the particular structures proposed are reasonably necessary, is not for this Court to determine.

It is of some interest to note that the several states involved, with the consent of Congress had in 1922 adopted the Colorado River Compact. Under article IV of that compact it was recited, "that the Colorado River has ceased to be navigable for commerce, and that the use of water for purposes of navigation shall be sub-servient to the use of water for domestic, agriculture and power purposes." Congress had concurred in that compact. Notwithstanding this declaration that the river had ceased to be navigable and that navigation should be sub-servient, the authority to build the dam was, as noted above, upheld and the motives of Congress were held to not be for the court. That doctrine was re-affirmed in First Iowa Hydro-Electric Co-op v. FPC, 328 U.S. 152 (1946).

If the various federal legislative grants of the right to appropriate water in accordance with the state law are subordinated to the sovereign power to control navigable waters, and if the sovereign power can be exercised without compensation, what rights initiated under state law can be secure? No one would quarrel with the principle of superior federal control in regard to navigation. The power is one which by its nature must be federal, but its exercise need not wipe out private rights without compensation.

Logically, the federal statutes confirming local custom and permitting appropriations under state law should be construed as a consent by the proprietary owner to the initiation of private rights. Where private rights have been initiated in accordance with the requirements of the applicable law, the rights ought to be protected. In disposing of its public lands, the federal government has long recognized that the various land statutes constitute an offer to the public of the right of entry. For example, when mining claims are located in accordance with controlling statutes, rights are initiated and subsequent withdrawal of the land for governmental purposes cannot cancel those rights without compensation. Such has been the uniform holding of our courts. See Lindley, Mines §539 (3d ed. 1914).

The same principle is applied to entries under the Homestead Act and the Desert Land Act. Even though the fee title is still in the United States, and much work must yet be done before a patent may be applied for, the mere initiation of the right is recognized as a species of property entitled to the protection of the due process clause. If the federal statute permitting the appropriation under state law were intended to mean that appropriations made thereunder are sub-servient and junior to the rights of the federal government to the same water for navigation, the statutes ought to be changed. Diversion of water for use on distant land is expensive. Often the efforts of a lifetime, even of generations, have been invested in building facilities in reliance on appropriations of water initiated under state law. The Government itself has been vitally concerned in having resources developed, and past federal water statutes have been calculated to lend encouragement to those efforts. Without regard to technical questions of where the ultimate power resides, as between the federal government and the state, practical considerations require the development of a system of law upon which the appropriator may rely. He must be assured that the investment he makes to develop the resources will not be wiped out without compensation by some dominant federal power.

The protection of these rights is not without precedent. In regard to the use of the surface of federal lands, permits have been issued for grazing. The permits generally fall into two classes, one governing the use of forest lands and the other under the Taylor Grazing Acts, relating to the use of winter range. Congress, in providing for the issuance of permits, has expressly recited that the permittee has no vested right in the land. The courts have uniformly held that when the lands are needed for governmental purposes, the permits may be revoked and the Government has no legal duty to compensate the permitee. See United States v. Cox, 190 F.2d 293 (10th Cir.), cert. denied, 342 U.S. 867 (1951); Osborne v. U. S., 145 F.2d 892 (9th Cir. 1944). Still, when use of the lands became necessary for military purposes, Congress expressly provided that:

> Whenever use for war or national defense purposes of the public domain. . .prevents its use for grazing, persons holding grazing permits or licenses and persons whose grazing permits or licenses have been or will be canceled because of such use shall be paid out of the funds appropriated or allocated for such project such amounts as the head of the department or agency so using the lands shall determine to be fair and reasonable for the losses suffered by such persons. . . . (43 U.S.C. §315(q) (1942))

Even in the navigation field compensation has been allowed t the holder of the private rights because Congress had not elected to assert its full dominant power. FPC v. Niagara Mohawk Power Corp., 347 U.S. 239 (1954); U. S. v. Gerlach Live Stock Co., 339 U.S. 725 (1950). In the Gerlach case the Court said:

> . . .[T]hat Friant Dam in fact bears some relation to control of navigation, we think nevertheless that Congress realistically elected to treat it as a reclamation project. . . .Whether Congress could have chosen to take claimant's rights by the exercise of its dominant navigation servitude is immaterial [because it didn't elect to do so here].

And in the Niagara Mohawk case, the Court said:

> We conclude, as did the Court of Appeals, that even though respondent's water rights are of a kind that is within the scope of the Government's dominant servitude, the Government has not exercised its power to abolish them.

In another case relating to the licensing of on navigable streams (Cooley v. Board of Wardens, 53 U.S. .) 299 (1851)), the Supreme Court upheld the power of Con o require pilots to comply with state law. The court note hat until it became necessary for Congress to exert its powe ,

> . . .it should be left to the legislation of the States; that it is local and not national; that it is likely to be the best provided for, not by one system, or plan of regulations, but by as many as the legislative discretion of the several States should deem applicable to the local peculiarities of the ports within their limits.

Thus, even if the navigation servitude is domi ant, it need not as a matter of policy be exercised to its full extent.

The Indian Water Rights

Insofar as the power to protect water for the Indians is concerned, again I believe that the power is and should be federal. At the time most Indian tribes were placed on reservations, they had not developed agricultural skills to a point where full use of water resources was made. Individually they lacked the educational qualifications to equip them to comply with state law on appropriation of water. In most instances the water flowing across the public lands and into and out of the reservations was unappropriated. The courts simply held that Congress, in creating the reservations, had intended to reserve both the land and the water. The Government, we must again note, was the proprietor. By its Acts of 1866 and 1877 it had offered the waters to the public, but as to the unappropriated waters the offer had not yet been accepted. The congressional power which could make the offer likewise could rescind it before acceptance. The creation of the reservations did this, and waters thus withdrawn with the lands were no longer offered by the proprietor for public entry. Instead, there was reserved to the Indian tribes the water presently needed for their reservations, and also the water which they might reasonably need in the future. No other holding would be moral insofar as the Indians are concerned, and theoretically the power of the proprietary owner to withdraw the unaccepted offer and the power of the sovereign to provide for the Indians can hardly be challenged. See U. S. v. Ahtanum Irr. Dist., 236 F.2d 321 (9th Cir. 1956); U. S. v. Walker River Irr. Dist., 104 F.2d 334 (9th Cir. 1939); Winters v. U. S., 143 Fed. 740 (9th Cir. 1906), aff'd 207 U.S. 564 (1908); U.S. v. Conrad Inv. Co., 156 Fed. 123 (D. Mont. 1907), aff'd, 161 Fed. 829 (9th Cir. 1908).

The Property Clauses

In the FPC v. Oregon, 349 U.S. 435 (1955), commonly called the Pelton case, the fact that the federal project was in part on Indian lands and in part within a power reserve were used as a basis for exclusive federal control and non-compliance with the laws of the state of Oregon. The Federal Power Commission had licensed the construction of a dam on an non-navigable stream solely for the generation of power with no consumptive use of the water. The power was not for the use of the Indians and the theory of the earlier cases on Indian rights would not work. The state of Oregon protested because of alleged interference with fish and because of non-compliance with Oregon laws.

The Supreme Court held that the matter was exclusively federal and no compliance with state law was necessary. The power was said to reside in the property clause which authorizes Congress to dispose of federal property. The Desert Land Act and other federal water statutes were held to be inapplicable. The Indian reservation had been created prior to the enactment of the Desert Land Act. The Desert Land Act was intended to apply only to "public lands," and the Court held that lands in an Indian reservation were no longer public lands. The power withdrawal, however, had occurred about 1910, long after the date of the Desert Land Act. The problem was to determine whether Congress, by creating the procedure for withdrawing lands for power purposes, had intended to have the withdrawal also withdraw the unappropriated water. If the power withdrawal was intended to constitute a withdrawal of the unappropriated water, then there is nothing wrong with the holding. But if Congress, by permitting the withdrawal of the land, had not intended the land withdrawal of the water, then the various federal water statutes should control and federal agencies should have been required to comply with the state law to get the water for the power project. Thus, the holding of the Supreme Court in the Pelton case is that the subsequent withdrawal of federal lands for power purposes impliedly superseded the Desert Land Act. Mr. Justice Douglas dissented because he did not think that such was the congressional intent.

While there is no theoretical reason why Congress, in exercising the power of the proprietor under the property clauses of the Constitution, cannot withdraw its offer of unappropriated waters and remove the same from state control, still such a far-reaching change of policy ought not to rest on implication. If such is the intent of Congress in providing machinery for withdrawal of land for various federal purposes, that intent ought to be express.

On June 23, 1958, the United States Supreme Court decided four cases which in the language of the court presented "issues of basic importance to Federal Reclamation laws." The cases are known generally as the Ivanhoe cases (Ivanhoe Irr. Dist. v. McCracken, 357 U.S. 275). In these cases the Supreme Court of California had refused to confirm certain contracts between two state irrigation districts and a water agency on the one hand and the United States on the other (47 Cal.2d 597 (1957)). The California court found the contracts invalid on several grounds. The dominant power of the federal government in regard to the management and disposal of federal property was again pronounced. On appeal, the U. S. Supreme Court said:

> In developing these projects the United States is expending federal funds and acquiring federal property for a valid public and national purpose, the promotion of agriculture. This power flows not only from the General Welfare Clause of Art. I, Section 8 of the Constitution, but also from Art. IV, Section 3, relating to the management and disposal of federal property. As this Court said in United States v. San Francisco, 310 U.S. 16, 29-30 (1940), this "power over the public land thus entrusted to Congress is without limitations. And it is not for the courts to say how that trust shall be administered. That is for Congress to determine."
>
> Also beyond challenge is the power of the Federal Government to impose reasonable conditions on the use of federal funds, federal property and federal privileges. [cases cited] The lesson of these cases is that the Federal Government may establish and impose reasonable conditions relevant to federal interest in the project and to the over-all objectives thereof. Conversely, a State cannot compel use of federal property on terms other than those prescribed or authorized by Congress. Public Utilities Commission of California v. United States, 335 U.S. 534 (1938). Article VI of the Constitution, of course forbids state encroachment on the supremacy of federal legislative action. (357 U.S. at 294-95) (emphasis added)

Other Dominant Federal Powers

Article VI of the United States Constitution expressly provides that:

> This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

As was noted by the U.S. Supreme Court in the above quotation from the Ivanhoe cases, "state encroachment on the supremacy of federal legislative actions" is forbidden. It must be assumed under this language that any treaty made by the United States concerning the use of waters of international streams would be binding upon the several states. So also might the power of the federal government to provide for the defense needs of the country. This was suggested in the case of U. S. v. Public Util. Comm'n, 141 F. Supp. 168 (N.D. Calif. 1956), aff'd, 355 U.S. 534 (1958). This controversy arose over the constitutionality of a California statute which provided that the state Public Utilities Commission might permit common carriers to transport property for the United States at reduced rates "to such extent and subject to such conditions as it may consider just and reasonable." The right of the military to contract freely with privately owned carriers was asserted. A three-judge court held the statute to be unconstitutional, on the grounds that the State of California could not regulate the federal government in the performance by it of its functions.

In a case decided August 27, 1958, a district court held that the federal government did not need to procure from the State Engineer for the State of Nevada a permit to drill wells on reserved lands constituting the Hawthorns Naval Ammunition Depot. Nevada ex rel Shamberger v. U. S., 167 F. Supp. 600 (D. Nev. 1958).

In 1960 I delivered a papers to the Western Resources Conference in Denver on Resource Development. My paper was entitled "Conflicts Between the Upper and Lower Basins on the Colorado River". I there noted:

> It must always be remembered that the Federal Government originally had a dual interest in the river. The first was a role of a sovereign, exercising the various powers granted to it by the Constitution (power to regulate commerce, art. I, sec. 8; the war power, art. I, sec. 8; the general welfare clause, art. I, sec. 8; treaty power, art. VI). The second involved the rights of a proprietary owner of Western lands and the waters arising on them. The sovereign powers granted to the Federal Government by the Constitution could not as a matter of constitutional law have been reconveyed by Congress to the several states (Cooley v. Board of Wardens, 53 U.S. (12 How.) 299 (1851)), and the signing of the compact did not, in any event, purport to have that effect. Thus, problems which were of local concern and therefore were left at the time of the compact to local state action can at some future time become of national concern justifying national regulation.
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> As is noted by Messrs. Frankfurter and Landis:
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> > ". . . In a zone for legislation open both to Congress and the States, the controlling facts justify, at least for the time being, co-operative State adjustment. Congress does not surrender any of its powers; it merely finds no occasion for its present exercise of them. There is, therefore, no 'delegation' of its power in any legally significant use of the term. But Congress does not foreclose the future. If and when circumstances which now call for solution through compact change, Congress is wholly free to assume control. . ." ("The Compact Clause of the Constitution -- A Study in Interstate Adjustments", 34 Yale Law Journal 685 (1925))

I then proceeded to discuss the disputes in the Lower Basin between Arizona and California in regard to the division of the Lower Basin water among the Lower Basin states. I noted that some problems in connection with the river development are local, some are regional and some are national, but that if the states should fail to reach an agreement and thus leave a void, "certainly Congress will have the power" under the ever-expanding concept of the commerce clause to re-enter the field by direct legislation. Because Congress may legislate directly in regard to many of the future problems arising both between the Upper and Lower Basins and between states within either basin, we simply cannot assume that the compact has solved all problems, nor that the states will be left free to settle their differences. This proved to be prophetic. Arizona and California were not able to resolve their differences and again went to the U. S. Supreme Court for a division of the water. In 1963, the court held that Congress had the power to allocate the water of an interstate stream among the affected states and that by adopting the Boulder Canyon Project Act in 1928, Congress had done precisely that. See Arizona v. California, 373 U.S. 546 (1963).

I was personally troubled with the decision because I had been following the allocation of water among the Colorado Basin states for many years and I do not know of anyone who was of the opinion that Congress had undertaken in 1928 to deal with that problem. It was such an important matter that one would have to assume that if Congress were intending to make the interstate allocation among Nevada, Arizona and California, that intention would have been expressed in the Boulder Canyon Project Act and would have been reflected in the Congressional debates. It is far too important to the states involved to have simply been enacted without debate. Three justices dissented, not because they doubted the power of Congress to exclude the states, but because they did not think Congress had intended to do so. One of the justices noted that there was a "pervasive hostility" among westerners to federal control of water rights in any form. He also noted that when it was suggested that Congress might legislate in this area, a storm of doubt arose as to the constitutional power of Congress to do so. The states had unsuccessfully responded by asserting that the only constitutional methods of apportioning the river were by a suit among the states in the U. S. Supreme Court, or by an interstate compact. A dissenting justice, Mr. Justice Harlan, stated that he saw no constitutional objection to a legislative apportionment of the water, but did not think Congress had intended to do so, and neither do I. He said:

> When plans for development of the Lower Basin threatened the rights of the upper States, they did not seek the simple (and in my view constitutionally unobjectionable) solution of a legislative apportionment. They employed instead the cumbersome method of interstate compact, which required authorization by Congress and by seven state legislatures prior to negotiation and ratification by the same eight bodies thereafter. When it began to appear that Arizona would not ratify the compact, Congress still did not legislate a general apportionment. . . .
>
> It is utterly incredible that a Congress unwilling because of concern for States' rights even to limit California's maximum consumption to 4,400,000 acre-feet without the consent of her legislature, intended to give the Secretary of Interior authority without California's consent to reduce her share even below that quantity in a shortage.

He concluded that Congress throughout the dispute had exhibited great reluctance to interfere with the division of the water by direct legislative action and that this was because of a deep and fundamental mistrust by the states of federal intervention and a profound regard by Congress for state sovereignty. Thus, when Congress was forced to legislate with respect to the problem, or face defeat of the project, it chose narrow terms appropriate to the narrow problems before it, and even then "acted only indirectly to require California's consent to limiting her consumption." He concluded that it is inconceivable that such a Congress intended that the sweeping federal power which it had declined to exercise itself would be exercised at the unbridled discretion of an administrative officer.

Mr. Justice Douglas, in his dissenting opinion, noted that the question is not what Congress has the authority to do but rather the kind of regime under which Congress has built this and other irrigation systems in the West. "Heretofore those regimes have been posited on the theory that state law determines the lotment of waters coming through the irrigation canals that are d by federal dams." He noted that the property right in the ter right is separate and distinct from the property right in e reservoirs, ditches or canals. He characterized the majority pinion as a bald "attempt by judges. . .to spin their own ilosophy into the fabric of the law, in derogation of the will f the legislature."

Nevertheless, it is now established law that Congress can till legislate to solve these interstate stream problems. It id so again in adopting filling criteria for Lake Powell. More recently in Sporhase, et al v. Nebraska, ex rel Douglas, Attorney General, 458 U.S. 941, the court noted that in an underground basin which intruded into several states, Congress does have the power to allocate the water and to regulate its use. This statement, which was not necessary to the decision, has caused great concern in the western states. However, it is consistent with what I have always believed the law to be.

The federal government originally was the proprietary owner of the land and the water. This has been established by a long line of decisions, and is perhaps best reflected by the following quotation from Alabama v. Texas, supra:

> "'For it must be borne in mind that Congress not only has a legislative power over the public domain, but it also exercises the powers of the proprietor therein. Congress 'may deal with such lands precisely as an ordinary individual may deal with farming property. It may sell or withhold them from sale.' [citing cases] "Article 4, Section 3, Cl. 2 of the Constitution provides that 'The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States.' The power over the public land thus entrusted to Congress is without limitations. 'And it is not for the courts to say how that trust shall be administered. That is for Congress to determine.' United States v. California, 332 U.S. 19, 27, 67 S.Ct. 1658, 1663, 91 L.Ed. 1889: "We have said that the constitutional power of Congress [under Article IV, $3, Cl. 2] is without limitation. United States v. City and County of San Francisco, 310 U.S. 16, 29, 30, 60 S.Ct. 749, 757, 84 L.Ed. 1050."

Under the United States Constitution, Congress is thus given the authority over federal property, under the clause which is commonly known as the property clause. Congress initially acquiesced in the squatters settling in the west and using the federal land and water. Then in 1866, Congress expressly authorized the acquisition of ownership of mining properties and water rights through compliance with state or local law and local customs. Where a private individual has followed local law and perfected a water right, it is a property right protected by the U. S. Constitution and it cannot be taken without compensation. The Ninth Circuit Court of Appeals expressly so held in Hunter v, United States, 388 F.2d. 148 (C.A. 9 Cal., 1967).

However, where there is unappropriated water which originates on the public land, the United States, through Congress, can withdraw the unappropriated water and thereby prohibit new appropriations. The court has implied such a congressional intent under numerous circumstances where federal land has been set aside for special use. The initial reservation was confirmed in 1907 in the case of Winters v. United States, supra, where an Indian reservation was held also to reserve Indian water. The court has since extended this reservation doctrine to many other situations and it has become known as the federal reserved rights doctrine.

In addition to its rights as a proprietary owner, the United States has numerous sovereign powers as a federal government. It has the power to control the waters of navigable streams under the commerce clause and it exercises this power as a basis for federal legislation in many areas, such as the basis for clean water legislation. It has powers under the property clause to manage waters on federal lands, such as Fort Douglas, where the government built Red Butte Reservoir without a state permit and on the U. S. Forest where the federal government built Mill Creek Reservoir without a state permit. It is used to regulate navigation. This was the basis for the power to build Boulder over Arizona's objection that the project had no state water rmit. It is used to drill wells on lands withdrawn for a litary base, again without a state permit, etc. Congress also s the power to provide for the general welfare and could gislate in this area for the health, welfare and safety of the ople. Congress also has the power to control projects built ith federal funds.

Thus, the federal government does have powers, both as a proprietary owner and as a government, over much of the water in the west. In the case of the Bureau of Reclamation, in 1902 Congress provided that the Secretary of the Interior would secure water for its projects through filings made under state law and the U. S. Supreme Court in a fairly recent decision, California v. United States, 440 U.S. 59, (1978), held that the mandates of the statute were controlling on the Bureau, and that even though, as a matter of basic power, the federal government may have proceeded without a state permit, Congress had provided otherwise. We thus have a state-federal partnership and we have on many streams state and federal systems co-existing, but generally speaking, the federal government has deferred to the states permitting each state to adopt its own system for allocating water.

In the east, where rainfall is generally adequate to mature crops, and where there is little public land, the states have followed the law of England with private rights to use the waters of the stream being dependent upon the ownership of land adjacent to the stream. In England the basic value of water was in the use of the stream for power purposes and the use of the water for transportation. The law which developed was, therefore, calculated to keep the water in the stream. This system would never have worked in the west. Our economy absolutely required that we divert water from its accustomed channel to irrigate our desert land, to mine our minerals and develop our industries. If we had confined water use to the lands abutting a stream, we would still be known as the Great American Desert.

In the Sporhase case, supra, the Supreme Court reviewed the history of water development and recognized expressly that Congress for over 100 years has generally deferred to the states. Still, it has the power to change. It was and is my opinion that western water problems are mostly local and that a statute trying to provide uniformity over the entire nation, or for that matter, even over the entire west, would not work as well as local statutes addressing local problems.

Federal and Local Problems

It must be recognized that in the very nature of the problem there must be some dual control. Obstacles constructed across navigable streams have to be regulated if navigability is to be protected, and such construction can hardly be left to the control of the individual state. The licensing and regulation of such structures is in fact a federal problem, and in any event is placed under the control of Congress by the Constitution. Yet, the power to regulate and license such structures does not need also to embrace control over the appropriation of project water. The use of water from a stream ought to be administered under a single system insofar as this is possible. Users of water above and below the licensed dam will have initiated their rights under state law. It will in no way interfere with the federal government's power to protect the navigability of streams to first require the procurement of a federal license, and then to require the securing of project water in accordance with state law, as was provided for reclamation projects by the National Reclamation Act. If this were done, the agencies created by Congress could prohibit the obstruction of navigable streams, except under federal license, but the use of water would be fitted into the state priority system in existence above and below the licensed dam.

That problem is complicated in some areas by the fact that the river in question may be the boundary between two states, or more, with different rules of appropriation. It might also be an interstate stream which originates in one state and flows into another. But theoretically this problem is solved by the fact that each state is entitled only to its equitable share of such a stream, and the total rights initiated under the laws of one state may not exceed that state's equitable share of all the water. Hinderlider v. LaPlata River and Cherry Creek Ditch Co., 304 U.S. 92 (1938).

One further problem in these cases develops after the conclusion is reached that Congress has withdrawn the water. For example, in the Indian cases, it is not enough to hold that Congress by implication withdrew the water. This merely gets it back in federal control. To get the water to the Indians, Congress must act in some fashion to grant to the Indians the right of use. This also must rest on implication in some cases. Where the Indians use the water of the same stream from which other users divert under state law, the administration of these rights on a priority, or any other basis, will inevitably bring conflicts. The quantity of water available for the Indians must be given some type of a priority, and the water of the stream must be divided upon some basis during periods of low flow and in times of shortage. In the Pelton case the water of the stream in question was going to be used for power purposes. The Supreme Court concluded that Congress had granted to the Federal Power Commission the right to license the use of the water under section 4 of the Federal Power Act, which provided that the Commission could issue a license "for a power project to use waters on land constituting reservations of the United States located in Oregon." It isn't at all clear what these waters consisted of, what the extent of the grant was intended to be, or how it fitted into the state priority system, except that vested rights of others were supposed to be protected.

Water rights granted under such a project may or may not be fitted into the state priority system. In the Pelton case the water use was non-consumptive, and a lower regulating dam made it possible to feed the water downstream in an even flow, rather than in surges, as needed for power purposes. But the principle of law there stated would permit Congress, under the property clause, to withdraw other unappropriated waters and to grant the right of use to other projects, where such protection may not exist. If such is done, conflicts will arise between that project and rights initiated under state law. It would permit a much more orderly administration if the federal agencies were to license and control the operation and construction of facilities which might interfere with navigation, and the water were appropriated under the existing state system, as was expressly required in the National Reclamation Act. No particular difficulty has been encountered from this requirement in more than 80 years of reclamation projects.

Perhaps one other problem ought to be noted in this discussion of power. On non-navigable streams, where the federal government has permitted acquisition of private rights in accordance with state law, these rights are vested and should be protected by the due process clause of the Constitution. On navigable streams, where rights have been initiated under state law, may the same rule apply, or are such rights subject to the dominant power of the federal sovereign to provide for and protect navigation? If this dominant power can wipe out rights initiated under state law on navigable streams, how far upstream can the dominant power run? The depletion of stream flow by diversion and consumptive use could interfere with navigation, even though the diversion may be from a non-navigable tributary. The dominant power really ought not to be extended so far. The federal government, under the property clause in the Constitution, may dispose of federal property. This is a right without limitation. (See the above quote from Alabama v. Texas, supra). From the Supreme Court opinions it would appear that the federal government owns the unappropriated waters of both navigable and non-navigable streams flowing through public lands. If under the pperty clause Congress elects to offer the waters to the blic, and the offer is accepted by the initiation of private ghts of use, there isn't any theoretic reason why these rights so should not be protected by the due process clause. Then if ongress thereafter elects to exercise its sovereign power over e waters of a navigable stream, the United States should pay ust compensation for injury to private vested rights. The power o regulate commerce does not require the federal government to rohibit all obstructions to commerce, nor to exercise its full owers as a sovereign to negate private rights it has granted as proprietary owner.

Resolution of Conflict Between Federal and State Power

In the last analysis, however, the matter ought to be resolved as a matter of policy -- not of power. Even if the dominant servitude for navigation could wipe out all private rights, as a matter of theory, it should not be exercised to that full extent as a matter of policy. Rights initiated in accordance with the federal offer ought to be protected. If thereafter it is necessary to take the rights for public use, compensation should be paid therefor.

The federal government itself ought to be and is vitally concerned with the development of the west. It is easy to forget that there was once written across the old maps of the west the legend "Great American Desert." The settlers have built an empire from the desert. The whole economy of the west is dependent upon its water resources. The people have been encouraged by the federal government to so build, and the great western water resources should all be put to use. A doctrine which will encourage the continued appropriation and use of the unappropriated waters is in the common interest of all, although there is a growing concern for protection also of the public interest in such things as minimum stream flows and environmental values in live streams. Waters readily available have long since been appropriated. Unappropriated water can only be diverted and put to use at great expense. If, under the various federal sovereign powers, rights so initiated are to be taken without compensation, there is little encouragement to future development. The federal government has in the past encouraged the development of oil and gas through liberal tax and leasing laws. Procedures for acquiring mining claims, homesteads, desert entries, etc., have been calculated as a matter of policy to encourage development. The western lands cannot be developed without water, and a protective policy which will encourage the expenditures necessary to appropriate the water and develop the land must evolve. Because the problems incident to the use of water are local in character, the law governing the use of water should be developed on a local level.

We will next examine state appropriation procedures.

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